THE CHEMIST AND DRUGGIST

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OUR COUNTRY AND COLONIAL SUBSCRIBERS are requested to furnish the ditor with any trade gossip that they may consider interesting.

Editorial Notes.

WE regret that the publication of our first ANALYTICAL REPORT ON HAIR DYES AND HAIR RESTORERS must be postponed until the appearance of our next number. The cause of the delay is that irresistible work-staying power, domestic affliction. Death has entered the home of our contributor and taken away his brother and daily companion, Mr. WILLIAM MATTHEWS, a gentleman whose cheerful disposition and open-hearted character endeared him to all who had the happiness to know him. Those who have worked with Mr. HENRY MATTHEWS, and have been accustomed to see the bright face of his late brother in the laboratory will deeply sympathise with him in his present sorrow.

WE understand that the Pharmaceutical Council have decided to apply to Parliament for an amendment of the Assistants' Declaration in Schedule E of the Pharmacy Act, 1868, the amendment desired being the omission of the word *immediately*. At present many old and well-qualified assistants are not permitted to pass the Modified Examination because they were not actually engaged in dispensing and compounding prescriptions for three years *immediately* before the passing the Act. Within this limited period some of the unfortunate assistants were abroad, while others were extending their knowledge of practical pharmacy and the drug trade in the laboratories and warehouses of wholesale dealers.

WE must remind our readers that the Chemists' Annual Ball will be held on Wednesday next, the 20th inst., at Willis's Rooms. Those who attended the previous Balls are not likely to be absent.

OUR correspondents will please to note the change in our address from 42A, Cannon-street to COLONIAL BUILDINGS, 44A, CANNON-STREET. We have for some time past absolutely required increased space and accommodation, and we consider ourselves fortunate to have obtained these so immediately in the neighbourhood of our former position. The ample arrangements for convenience in our new offices will give us no excuse for want of attention to every detail connected with our journal and the trade; and commencing the year as we do with these advantages, as well as with an increased staff, hundreds of new subscribers, and bright prospects for pharmacy, we look hopefully upon our future course.

Veterinary Notes.

BY W. HUNTING, M.R.C.V.S.

THE ADMINISTRATION OF MEDICINES TO THE VARIOUS DOMESTIC ANIMALS.

AS future numbers will contain formulæ and prescriptions suitable for special affections, this, the first article, may well be devoted to a few general hints on the administration of drugs. The lower animals present certain differences in the structure of their digestive organs, and it is to the relation of these, to the *forms* of preparations, that attention is now drawn, and not to the merely mechanical act of giving.

Medicines are usually administered to horses in the form of balls or draughts, sometimes as powders mixed with the food.

Substances mixed with the food must, of course, have no very disagreeable taste, nor any marked odour, save some few vegetable aromatics, as coriander, carui, and anise, which are frequent ingredients of tonic and stomachic preparations. All powders are better mixed with *damp* food.

DRAUGHTS are a very common form, and, for some agents, indispensable. In cases accompanied by sore throat they should be used cautiously, as the animal from having the head elevated is apt to cough, and so allow a portion of the draught to pass into the windpipe—not a fatal accident, but one tending to aggravate the case, or even produce fresh complications.

In sore throats, then, it is advisible to substitute electuaries, made either with honey or treacle, and merely smeared on the tongue.

BALLS are by far the handiest form of preparation, being by most stable men readily given. In this form, there is a greater certainty of the animal getting the whole dose, as medicines mixed with the food may be left untouched, and, commonly, a good deal of a draught is wasted in the giving. Balls should be cylinder shaped, not more than one inch in diameter, and about two and a half inches in length.

They should never be used in cases of sore throat, as they certainly irritate the part, and may be coughed back into the nose, from which cavity their removal is extremely difficult. It is thought by some people that medicines act quicker in the form of the draught than as balls. Under this impression, aloes is frequently given in solution. Numerous experiments upon horses show that nearly all balls are thoroughly dissolved in the stomach in less than half an hour. We may, then, when practicable, give the preference to balls, as the best ordinary form of preparation for horses.

It may be well to remember that the horse cannot vomit, and that emetics are never used, even tartar emetic in immense doses producing no marked symptoms.

Oxen differ from horses, principally in having four stomachs, and possessing the power to ruminate. By far the best form of administering medicine to them is the draught, as they are easily held, and have not, like the horse, the power of retaining fluids in the mouth for a long time without swallowing. Balls are nearly useless for ruminants, as the mildest illness is accompanied by suspended rumination. Balls, like all solid masses, pass directly into the first stomach, and remain there undigested and unabsorbed. Probably, some portion of all fluids passes into the rumen also; for this reason, then, it is best always to give a considerable quantity of fluid with a draught. We believe 12 oz. of magnes. sulph. in four quarts of water to be as active as 16 oz. in half the fluid.

Sheep may have medicines given to them in precisely the same form as oxen, the dose, however, being only about one-fourth.

Pigs should have their medicines mixed with the food. When this fails, as, for instance, in cases of total loss of appetite, the draught is used. Great care must be taken not to pour fluids into these animals whilst they are squealing, as they are most easily suffocated.

Dogs take medicines easily in the form of pills or draughts. When the appetite is good, substances may be mixed with the food, or, if nearly tasteless, sprinkled on a piece of meat.

The readiness with which vomiting is induced in dogs is a difficulty to overcome by a little ingenuity. For tapeworm, a mixture of ol. filicis. maris and turpentine is often given; this mixture unprotected is certain to cause vomiting. To overcome which, tie up the ingredients in a small sausage skin, and the dog will bolt it whole, and not eject it.

Pills, too, may often be kept down, by giving the dog a small piece of meat after them.

It must be remembered that medicines do not act with the same power on any animals if given on a full stomach. According to the circumstances, then, either increase the dose a little, or order it not to be given immediately after a meal.

CARBOLIC ACID FOR WOUNDS.

If a wound will heal by the first intention, the less done to it the better. If, on the other hand, suppuration is inevitable, the most beneficial effects follow the use of carbolic acid combined with glycerine or linseed oil, in the proportion of 1 to 20; it may be applied night and morning with a feather. To refer to special wounds, I may mention broken knees and sore backs and shoulders. Of course, as with all other dressings, the wound must be kept clean, and in the case of backs and shoulders, all pressure removed by small pads of curled horse-hair, sown on to the harness, above and below the sore.

Pharmaceutical Society of Great Britain.

EVENING MEETING,

January 6th, 1869.*

Mr. Evans, Vice-president in the Chair.

The minutes of the preceding meeting having been read and declared correct, and donations to the library and museum acknowledged, a paper was read

ON HOME-GROWN PODOPHYLLUM AND JALAP. BY WALTER G. SMITH, M.B., DUBLIN.

In the first instance the author made some general remarks on the influence of climate on the growth of medicinal plants, and the development of their organic proximate principles, pointing out that the monthly isotherms gave more valuable indications as to the probable result of an attempt at acclimatisation than the annual figures. He observed that, although a plant might vegetate well, and put on a healthy appearance, it did not follow that its constituents would be found identical in every respect in different quarters of the globe, for the formation of active principles seemed to be affected by causes so subtle as to be beyond our ken. As an instance of the successful acclimatisation of medicinal plants, he referred to the Cinchonas cultivated on the Neilgherry Hills, which are found to compare favorably with those derived from the Peruvian forests, in their yield of alkaloids. The author then approached the immediate subject of his paper, by detailing the examination of specimens of Podophyllum and Jalap cultivated in the Botanic Gardens of Trinity College, Dublin, referring more especially to their respective yield of resin, as compared with the amount afforded by these plants when grown in the New World, their native habitat. The specimen of Podophyllum examined by Dr. Smith agreed exactly in physical characters with American Podophyllum, as to thickness, colour, fracture, etc. Analyses effected by Dr. Smith and Mr. Tichborne showed the percentage of resin to be 4·54 and 4·8 respectively, proving that home-grown Podophyllum may compare favourably with American samples as to amount of resin. An examination of its physiological effects led to an equally satisfactory conclusion. After a few words on the supposed cholagogue action of podophyllin, the evidence of which, to Dr. Smith's mind, seemed very inconclusive, he referred briefly to the result of the analysis of the Jalap plant cultivated in the Botanic Gardens. It yielded a fair amount of resin. The author admitted that his examination of the physiological properties of the home-grown Jalap was not so complete as his corresponding investigation concerning Podophyllin; but he hoped to have further opportunity of testing the activity of the drug.

Professor Bentley commended Dr. Smith's efforts; but lamented that his remarks should have treated almost exclusively of Podophyllum, the cultivation of which plant, in England, was not of such importance as that of Jalap, the supply of Podophyllum being plentiful, and likely to remain so; he should, therefore, look anxiously for Dr. Smith's observations in regard to Jalap, it being of importance to encourage its growth in England. He was, however, inclined to consider that we must be chary of accepting the success obtained last year, which might, perhaps, be due to the exceptionally hot summer, as a precedent for what we may expect in years to come.

Mr. D. Hanbury exhibited a specimen of Jalap grown in England. He mentioned that the attempt to grow it in the South of France was a complete failure, owing to the dryness of the climate, while in England the shortness of the summer was equally fatal to success. He was, for his part, at a loss to conceive what part of the world but India could look for any success in the cultivation of Jalap.

A paper was then read

ON THE DETECTION OF METHYLIC ALCOHOL. BY J. T. MILLER.

The author, alluding to Mr. Draper's failure in obtaining correct results by merely shaking the spirit with carbonate of potassium, described a process for preparing the spirit for oxidation, which had given satisfactory results, and of which the following is an abstract:—

An ounce of the sample is shaken with successive quantities of anhydrous carbonate of potassium until the latter ceases to be dissolved, the supernatant spirit (free from acid and water) is then drawn off. Half a fluid ounce of this spirit is introduced into a flask with 180 grains of powdered anhydrous chloride of calcium, and distilled exhaustively over the water-bath to remove nitrous ether and other interfering substances. Half a drachm of water is then added to the contents of the flask, and half a drachm of spirit drawn over for testing. This is treated with 30 grains of red chromate of potassium, 25 minims of strong sulphuric acid, and half an ounce of water; the mixture is allowed to stand a quarter of an hour, and half a fluid ounce distilled. The distillate is treated with a slight excess of carbonate of sodium, boiled rapidly down to two fluid drachms, and acetic acid cautiously added to faint acid reaction; the liquid is poured into a test-tube, two drops of diluted acetic acid, B.P., and one grain of nitrate of silver in half a drachm of water added, and the mixture boiled gently for two minutes. The presence of one per cent. of methylic alcohol causes the liquid to turn first brown, then almost black and opaque, giving a deposit on the sides of the tube which assumes the appearance of a mirror if 3 or 4 per cent. of methylic alcohol be present, whereas, if there is none, a slight darkening of the fluid alone occurs."

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* Reported specially for this journal

The author then referred to several samples which he had examined and found to contain methylic alcohol, proving the not unfrequent violation of the Excise law.

The CHAIRMAN alluded to the prevalence of the adulteration, and to the heavy fine which might be inflicted at the instance of the Excise.

Mr. HANBURY inquired whether there was any law to prevent the use of methylic alcohol in the preparation of sweet spirits of nitre. After some discussion,

The CHAIRMAN referred to the Act, which prohibits the use of methylic spirit in any potable liquor. Sweet spirits of nitre should not be prepared with methylic alcohol; ether and chloroform might be.

A paper was then read.

ON CHERRY LAUREL WATER. BY MR. UMNEY.

The author remarked that since the introduction of Aq. Lauro. Cerasi into the British Pharmacopœia the demand had increased to two or three times the amount. He had made the following experiments in order to obtain uniformity in the strength and action of this medicine, and to remedy the evil of the varied proportion of its poisonous principle. Alluding to the process adopted by the compilers of the Pharmacopœia, the author questioned the wisdom of macerating the leaves twenty-four hours before distillation, and suggested that a similar reaction was set up on the addition of water to bruised cherry laurel leaves as occured in the case of bitter almonds, the azotised body of which (amygdalin), was acted upon by a ferment (emulsion), and instantly essential oil, prussic acid, sugar, and formic acid resulted. The author inferred that the product by distillation after previous maceration was deteriorated in respect to essential oil, although perhaps not to an appreciable extent in prussic acid, because the constitution of the oil of cherry laurel resembled that of bitter almond oil in almost every respect. The author found that immediate distillation of thoroughly bruised leaves as soon as in contact with water, gave always a distillate superior in fragrance and equal in hydrocyanic acid, and in some cases with a larger amount of the latter, than when distillation was deferred till after twenty-four hours' maceration.

The author then stated that less than half the amount of hydrocyanic acid was obtained from leaves operated on after being kept a week or two, than was obtained from similar leaves used when fresh, and that the amount of acid diminished by keeping the distilled water, to the extent of from ten to twenty per cent. of the original quantity of acid in a few months.

In respect to the time of the year at which the waters were made, the author found that the highest strength of prussic acid was obtained in March, when it reached 1·26 grains real acid in 1,000 grains; the lowest in November, when it was only half the strength, viz. 0·64 grains real acid in 1,000 grains; and a medium result of 1·08 grains in 1,000 grains in the month of July. The excessive inconsistency shown in these results led to the examination of samples of cherry laurel water obtained in town, some of which were found to be of only one-half the strength of others.

The author then alluded to the directions given in the Codex, which are to the effect that the leaves shall be gathered from May to September, that the distillation shall be conducted immediately, and that the product shall be examined and brought to a uniform strength of 50 milligrammes in 1,000 C.C., a matter in which we might with advantage imitate the French, presuming that it is necessary that such a preparation should remain officinal.

Dr. REDWOOD concurred with the author. He looked upon cherry laurel water as an abomination, and always protested against its introduction into the Pharmacopœia. He had, however, been met with the objection that, in spite of its indefinite character, medical men required and choose to keep it in use. Dr. Redwood had also obtained the same results as Mr. Umney from an examination of cherry laurel water that he had made at a former time. Dr. Redwood referred to cherry laurel water as one of the numerous cases in which an indefinite preparation is, or appears to be, more efficacious than one of a more definite nature, and said that the only reason why we should retain laurel water was to supply the requirements of medical men.

Dr. ATTFIELD said that the subject ventilated by Mr. Umney had been well brought forward by Mr. Draper, a few years ago, who suggested that prussic acid of known strength should be mixed with oil of cherry laurel, or that freshly-prepared laurel-water should be reduced to a standard strength by aid of volumetric analysis.

Mr. HANBURY preferred to retain cherry laurel-water for those who wanted it, and said thatthose who wanted prussic acid of definite strength might use that of the Pharmacopœia.

A laboratory note was then read

ON CITRATE OF QUININE, BY PROFESSOR ATTFIELD.

A pharmacist had recently brought the following prescription to Professor Attfield under a complaint that sediment of variable amount and consistence was produced in it either at once or after the lapse of a few days:—

Quiniæ Sulphatis, gr. viij.
Acidi Citrici, ʒj.
Potassæ Citratis, ʒj.
Aquæ, ad ℥viii. Misce.

This sediment was found to consist of nothing but citrate of quinine. Its formation hindered the proper apportionment of the dose when poured into a measuring glass or spoon, inasmuch as the precipitate stuck to the sides of the glass, and the size and weight of the crystals would also interfere with their proper diffusion. If, however, the solids were rubbed together in a mortar with a few drops of water for a minute or two, and the rest of the water was then gradually added, a mixture would be obtained which certainly was not clear, and the aqueous portion of which would probably not be saturated with citrate of quinine for several hours, but which would always have the same appearance when dispensed, and admit of proper apportionment of doses after shaking.

The CHAIRMAN remarked that difficulties of the same kind as those mentioned in Professor Attfield's note had been met with in the preparation of quinine wine.

A laboratory note was then read by Professor ATTFIELD

ON AROMATIC SULPHURIC ACID.

This was a record of an experiment proving that sulphovinic acid was not formed in the officinal aromatic sulphuric acid. A portion of the diluted spirit was treated with carbonate of barium, the excess of carbonate and the sulphate of barium removed by filtration, washed with acid and water and weighed. The weight indicated as much sulphuric acid (indeed, rather more, probably due to slight evaporation) as was known to be contained in the portion of spirit used. The filtrate from the carbonate and sulphate of barium which would contain any sulphovinic radical, as soluble sulphovinate of barium, was then evaporated and dried up without leaving any such compound. Dr. Attfield therefore concluded that aromatic sulphuric acid, made according to the Pharmacopæia contained no sulphovinic acid, as had been supposed by some pharmacists, but was simply an alcoholic solution of unchanged sulphuric acid.

Professor Attfield then read a laboratory note

ON THE ADULTERATION OF PRECIPITATED SULPHUR.

The author showed that out of eight samples of precipitated sulphur, purchased within an area of one mile, only one was pure; one contained nearly half its weight of sulphate of calcium, and each of the other six actually contained only one-third of its weight of pure sulphur. He recommended that pharmacists should refuse to purchase any precipitated sulphur which left a white ash when a little was burnt off on the end of a table-knife or spatula, remarking that the sulphur did no more harm to the steel than a rub on the knife-board would remove.

The statements in this note caused a very animated discussion amongst some of the leading members of the society.

Dr. **Redwood** repudiated the charge against the pharmaceutists, and suggested that the presence of inert foreign matter, such as sulphate of calcium, might in some way promote the efficacy of a medicine. For the latter reason, and because the public had [been accustomed to take sulphur in this form we should beware how we upset a medecine established many years. Dr. Redwood wished it to be clearly understood that he did not advocate the use of milk of sulphur, but whilst people asked for that in preference to pure precipitated sulphur, by all means let both be kept in stock.

A **Member** stated that he had offered pure precipitated sulphur across the counter, but that it had been objected to on the ground that it did not mix well.

Mr. **Hills** drew attention to the fine to which all were liable who persisted in adulterating sulphur. The firm he represented had found no difficulty in persuading customers to use the pure article; they now purchased nothing else.

A **Member** stated that on entering business he determined to sell none but the purest articles. His attempts to sell pure precipitated sulphur were, however, of no avail; the article was absolutely refused.

Dr. **Redwood** contended that milk of sulphur and precipitated sulphur were two different articles. The preparation sold under the first name was sulphur precipitated from polysulphide of calcium, by means of sulphuric acid, hence it contained a large quantity of sulphate of calcium, but the latter was no adulteration; the preparation was a very old established one, and the public had become accustomed to its use. On the other hand, precipitated sulphur was pure sulphur thrown down from polysulphide of calcium by means of hydrochlorine acid; any one who sold *milk of sulphur* under the name of the latter was certainly guilty of fraud, but not when selling it under its old name.

Dr. **Attfield** said chemists and druggists might recognise a difference between milk of sulphur and precipitated sulphur, but the public did not. "Milk of sulphur" was simply the popular name for the officinal preparation, and he was quite sure that purchasers, in using that name, did not know they were liable to be supplied with an article of which less than half was sulphur. He contended that, as a matter of common sense, when precipitated sulphur contained sulphate of calcium it was adulterated; and he was surprised to find anyone connected with the Pharmaceutical Society defending the practice, under the shelter either of custom or an old pharmacopœia.

Mr. **Hills** would ask why, if adulterated sulphur was so good a thing, a formula was not given for it in the British Pharmacopœia.

Dr. **Redwood** said that while he denied the fraud on the part of pharmaceutists who sold sulphur with sulphate of calcium under the name of milk of sulphur, still he did no advocate the use of the mixture; some people, however thought it more efficacious.

Mr. **Hanbury** said that sulphuric acid was originally used through ignorance. The firm in which he was a partner had not met with any difficulty in supplying the pure article only.

Mr. **Morson** said, that milk of sulphur was the old name given to an article containing sulphate of lime, and that whilst it was sold as such, and not as precipitated sulphur, no fraud was committed.

Mr. **Hills** would recommend pharmaceutists to adhere to the pure article, and the pure article alone, although he was quite sensible of the clever advocacy of Dr. Redwood.

The **Chairman** announced the next meeting for Wednesday evening, February 3rd.

SPOON MEASUREMENT.

A Few Remarks on the Fallacious Results Attendant on the Use of Spoons for Measurement of Medicinal Doses.

BY M. J. ELLWOOD.

Although the subject of this communication can scarcely be considered pharmaceutical, yet as the facts constituting it are such as are likely to occur under the observation of pharmacists, some excuse may be urged for my bringing it forward.

I have been enabled to ascertain with tolerable accuracy the contents of about fifty tea, table, and dessert spoons, measured in four towns in different parts of England, and the results are certainly remarkably dissimilar. The spoons in use many years ago doubtless contained what they now only theoretically contain; but for some time a gradual increase of size has been progressing, in much the same ratio as medicines have been increasing in strength and concentration, so that where formerly a patient took one, two, or four drachms for a dose, he now more frequently takes two, four, and six or eight drachms.

Such an unsatisfactory mode of dividing doses is scarcely compatible with the care and anxiety bestowed on the dispensing of the medicines, and surely some more accurate and as convenient a plan as that now alluded to should be adopted. It may be urged by some that the sale of properly graduated glasses should be aimed at by the dispensers; but as only a very small percentage of our customers are willing to incur this extra expense, it follows that some plan convenient to the patient, and sufficiently accurate to satisfy the medical man, should be sought after; and, perhaps, that one already partially in use would answer, viz., the divisions into one-sixth, one-eighth, or other parts. Bottles marked with such divisions are already kept by chemists, and other graduations could be readily made. Another plan would have to be adopted for such small doses as teaspoons, but, probably, some one will bring forward a means of overcoming this difficulty.

The following table will show the result of my labours:—

TEA-SPOONS.

Date 1760 ...	*Silver*	contained	60 minims.
,, 1790 ...	,,	,,	60 ,,
,, 1800 ...	,,	,,	60 ,,
,, 1830 ...	,,	,,	60 ,,
,, 1830 ...	,,	,,	80 ,,
Very old ...	,,	,,	60 ,,
,, ...	,,	,,	60 ,,
,, ...	,,	,,	50 ,,
Modern ...	,,	,,	120 ,,
Date 1845 ...	*Electro*	,,	80 ,,
,, 1850 ...	,,	,,	95 ,,
,, 1850 ...	,,	,,	110 ,,
	Common	,,	80 ,,
	,,	,,	80 ,,
	,,	,,	65 ,,
	,,	,,	90 ,,
	,,	,,	90 ,,
	,,	,,	90 ,,
	,,	,,	90 ,,
	,,	,,	90 ,,
	,,	,,	100 ,,
	,,	,,	100 ,,
	,,	,,	120 ,,
	,,	,,	120 ,,
	,,	,,	150 ,,

DESSERT-SPOONS.

Old	*Silver*	contained	3 drachms.
	,,	,,	3 ,,
Date 1830 ...	*Electro*	,,	4 ,,
,, 1855 ...	,,	,,	4½ ,,
	,,	,,	3 ,,
	Common	,,	4 ,,
	,,	,,	3½ ,,
	,,	,,	3½ ,,
	,,	,,	3½ ,,
	,,	,,	4 ,,
	,,	,,	4 ,,
	,,	,,	2½ ,,

TABLE-SPOONS.

Date 1690 ...	*Silver*	contained	4 drachms.
,, 1830 ...	,,	,,	6½ ,,
,, 1830 ...	*Electro*	,,	7 ,,
	,,	,,	6½ ,,
	,,	,,	7 ,,
	Common	,,	6 ,,
	,,	,,	6½ ,,
	,,	,,	5 ,,
	,,	,,	6 ,,
	,,	,,	6 ,,
	,,	,,	5 ,,

WINE-GLASSES.

No. 1	contained	12 fluid drachms.
2	,,	19 ,,
3	,,	19 ,,
4	,,	16 ,,

In immediate connection with this subject is the present fashion of concentrated medicines. The mania for infinitesimal doses cannot be too strongly condemned, as it not only involves such increased scrupulous exactness on the part of dispensers, but is a source of danger to the patient, who too frequently carries home with him in a *small phial* sufficient poison to destroy life.

I should be sorry to see the old system of "*Drenching*" revived, but there is the happy medium to resort to; and, indeed, in a commercial view, it seems unfair that the profession of pharmacy should suffer pecuniarily through the increased responsibility undoubtedly thrown upon it by this system.

The results of my experiments show how a dose, intended by the prescriber for sixty minims, may be augmented to eighty, ninety, or even a hundred-and-twenty, by the unsuspecting, but too confiding patient. There are other important facts connected with this subject, but which I leave to more competent pens than mine to treat of, and I trust that the little I have written may be the means of inducing others to take up a subject containing so many anomalies and requiring great reforms.

Newcastle-on-Tyne, January, 1869.

THE NEW PETROLEUM ACT.

ON the 1st of February, 1869, the above Act of Parliament, passed during the last session, will come into force, and it is highly important that those druggists who deal in petroleum should be made acquainted with its provisions. We have before quoted some of the most important of these, but the immediate approach of the date referred to has induced us to submit to our readers the following abstract.

The Act is intended as an enlargement of the powers of local authorities given by the former Petroleum Act which came into operation in 1862, and the following is now the state of the law respecting the storage and sale of petroleum In the first place, the word petroleum is defined by the Act as including "all such rock oil, Rangoon oil, Burman oil, or product of them, and any oil made from petroleum, coal, schist, shale, peat, or other bituminous substance, and any product of them, as gives off an inflammable vapour at a temperature of less than 100 degrees of Fahreheit's thermometer."

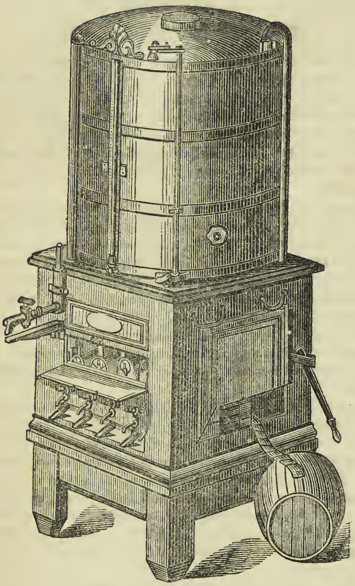
Secondly, the Act provides that it shall not be lawful for any person to keep *any* quantity of petroleum not intended or private use, within fifty yards of a dwelling house or building in which goods are stored, except under licence from the local authorities. The penalty for the violation of this clause is that the oil may be forfeited and the proprietor be liable to a penalty not exceeding £20 for every day during which the oil shall be so retained. The Act of 1862 provided that not more than forty gallons should be kept in stock by an unlicensed dealer.

Thirdly, the Act provides that all petroleum of the inflammability mentioned above must be labelled as follows when sold:—"Great care must be taken in bringing any light near to the contents of this vessel, as they give off an inflammable vapour at a temperature of less than 100 degrees of Fahrenheit's thermometer." A penalty not exceeding £5 may be inflicted on any person not using such a label.

It is the duty of the inspector of weights and measures to examine and test the petroleum offered for sale, and he has authority to inspect any one's stock at all reasonable hours. In case of dispute respecting the temperature at which the petroleum is inflammable it is to be decided by the public analyst, or where such analyst has not been appointed, the magistrate may call upon "some other person having competent chemical knowlege" to test a sample according to the instructions laid down in a schedule—the fee for such examination being prescribed at not less than two and sixpence, and not more than half a guinea. Doubtless some cheap, simple, and trustworthy apparatus, such as is required by this Act for the purpose of testing the inflammability, will be introduced, so that by its aid all chemists may be enabled to act as the analysts if required.

The local authorities may fix such conditions on the granting of the licences for storage as may seem to them expedient; and we learn that the Metropolitan Board of Works, to whom London dealers will have to apply for licences, are likely to make these conditions somewhat stringent.

Such being the case we need offer no apology for the introduction of a sketch and description of a most complete and ingenious invention for the purpose of safely storing inflammable oils, just introduced by Mr. Bertram, of 23, Ludgate Hill, and which has been courteously explained to us by the inventor. We are sorry that our illustration, having been prepared from one of the earlier models, does not give so good an idea as we could wish of the elegant and at the same time somewhat imposing appearance of the apparatus. A double action pump, the handle of which is shown in the figure, soon forces the liquid into the cistern, and by means of a gauge and thermometer, the exact quantity and temperature of the contents are indicated. The remotest possibility of danger is avoided by a sheet of fine wire gauze being stretched across the cistern, near the top, inside. Access of air is given by means of tubes conducting from the roof to the chambers beneath, and by a series of exceedingly clever mechanical arrangements, an exact quantity of the oil can be drawn off from the taps without the slightest necessity of employing either measure or funnel, and entirely precluding the possibility of waste. In the sketch before us four taps are shown which supply respectively half-a-pint, one pint, one quart, and two quarts at each draw. The contrivance for the accuracy of these measurements is regulated by the specific gravity of the oil, and can be regulated for liquids of any density in a moment by means of indicators shown in front. Thus the weight can be as certainly depended upon as the bulk. The whole apparatus is provided with a master key, by the use of which it can be securely locked up, so that no tampering with the contents can take place. We were particularly struck with this last feature, which would seem to point to a value which such an invention might possess for the storage of more valuable oils than petroleum, such as bergamot and lemon, for instance, to the wholsale druggist, while the convenience and economy of an accurate measure would also, in such cases, be equally appreciated. The prices of the apparatus are not, we believe, yet fixed. They will probably range from about £10 to £30.



BERTRAM'S PETROLEUM STORE.

Since writing the above we have been informed that Messrs. Cassel, Smith, and Co., of 80, Fenchurch-street, are supplying the required labels, and for very full particulars respecting this and other requirements of the Act, we refer our readers to the circular from this firm, stitched in with the present number of the CHEMIST AND DRUGGIST.

AN APOLOGY FOR LATIN.

BY JOSEPH INCE.*

THE subject here presented is of the deepest and most urgent importance. I implore those who have under their care apprentices, or others who may hereafter seek a living by what is called Pharmacy, not to be led astray respecting this matter.

It is not intended, because special stress is laid upon one point, to disparage the usual branches of a liberal education. We are Englishmen, and must learn to read and write correctly the language which we speak, as well as to be conversant with the works of those who have made us proud of our nationality; but it is my object to demonstrate the evil consequences entailed by the neglect of a particular study. Recent examinations and the confession of many who are anxious to prepare themselves, have shown how incalculable is the help to be derived from an early moderate acquaintance with the classics, due not only to positive knowledge gained, but to an enviable facility of concentrating mental power. I have no wish (save for the marvellous pleasure of the thing, and its gilding of the monotony of life) to recommend the study of Virgil, Horace, Livy, and Cicero; still less to become romantic and Utopian in praise of Greek; but it cannot be denied that such studies form a mental training which men with easy fortunes may neglect, but the loss of which we, as pharmacists, who have to gain a living, cannot possibly afford.

Why is Latin thus prominently introduced? Is it sought by a trick of literature, or by an affectation of profound scholarship, to write sensational sentences?

A new existence opens out for pharmacy, higher and better than the past; a career for which we may prepare our sons without sense of social degradation, But excelsior status can only, though secured officially, be supported by corresponding fitness.

Now Latin strikes at the root of the superficial—its teaching cannot be guessed at: in itself as a commencing study, it is utterly unattractive. Every word means something, no one noun or adjective can be substituted for another. *Vir* is man, and so is *homo*, in English, not in Latin. To grasp its elementary principles nothing but close attention and thoroughness of labour will avail. A youth scarcely fledged—given a certain amount of cleverness and self-sufficiency, can soon theorise and discourse in a popular manner about most other things; the mysteries of religion are explained on Sunday afternoons by young gentlemen in the Regent's Park, to an admiring family audience and one London Member of Council, whilst the novice easily becomes familiar with the run of scientific experiments in a manner which (unhappily for himself) may astound the listener as much as the Fellows of the Royal. But Latin is imperative in its demands: a page of Ovid or of Sallust is a battle-field which must be conquered, and nothing can avail the combatant but work. The truer the work, the greater the success.

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This earnest strife is in itself the foundation of future excellence. When hexameters and pentameters are forgotten, when it is no longer of the smallest consequence whether the first and second Punic wars are hopelessly confused, when Julius Cæsar, may with impunity be mistaken for Augustus, when the fourth Georgic may have ceased to charm, and the Eclogues are as little remembered as the Sic te Diva, still the result remains—one for which the student, especially the Pharmacist, may thank God every day of his after life. There is left the gift of accurate, minute investigation; the longing for and realization of the possession of abstract knowledge; the capability at a given instant of directing trained energy in any desirable direction.

There is, moreover, a release from the tyranny of desultory endeavour; from the waste of time and plodding spent in praiseworthy but mistaken approach to work in hand. Finally, to a mind thus exercised there is the dowry of that innate command of thought and consequent action which eventually will prove the surest hold upon the reins of business, and will at least rob our examinations of their last trace of terror.

On the other hand, speaking with the utmost deference, physical and general science, with all their attractions, may largely supplement, but will never supply the place of a dead language in an educational point of view. This is written chiefly respecting Pharmacists, to whom opportunity of long-continued scholastic training is denied; for *us* the mainspring is essential, we must wait for the jewelled holes and ornamentation. Few years on an average are allotted to our book-learning; the world steps in too soon, but of necessity, and business must be attended to. The first thing to be done with a boy who knows nothing, and has comparatively little time, is so to discipline his thought that he may be able to learn something, indeed, *any*thing, hereafter to advantage.

Let the matter be divested of idealism. How marvellous are the wonders chemistry unfolds! how grand the progress of physical science, and how manifold the material blessings it bestows! how the mind is lost in love and admiration while engaged in any branch of natural research! Then why not teach these things in our schools, nor let the stripling waste his precious time over dactyls and spondees, or on being expert in Sapphics? Simply because *our* school-time is very short.

For these pursuits, which are the perpetual delight of thousands in after life, the scholar at the age alluded to cares less than the wind that whistles; cares far more for a boxwood top with plenty of string, and warranted to spin. If he can, by the position of his parents and favouring circumstances remain at school long enough that his mind gradually wakes up to the siren voice of nature, so much the better; offer him the fullest opportunities. Such is not the usual happiness of a druggist's son. Even then I would repeat my earnest entreaty that no father or guardian should be persuaded to neglect that most obvious, safe, and effectual preparation, acquaintance with the Latin language.

Those who consider a school a granary of useful facts, and *that*, the best from which the most are borne away, oftener than not must meet with experiences they cannot understand. Those who are under the impression that the schoolmaster waves an enchanted wand, with which he transmutes his pupil into a ready-made Sir Isaac Newton, or that in the limited time allotted he can give an insight into things in heaven above and in the earth beneath, occasionally will be disappointed. We shall not stray far if we follow the track which the wisdom of our ancestors has pointed out.

Many just now are seeking to qualify themselves for examination—the will is present and the strong desire. No mentor is wanted to give counsel on the value of time well occupied. Then comes the disheartening truth, coupled with the bitter discovery how hard it is to force the undisciplined mind to answer, when bidden, to the work required. Add to this the distraction of business engagements, late hours, and some amount of exhaustion. No praise can be too high when such difficulties are surmounted.

The subject is placed, without reservation, briefly but conscientiously before the reader. Soon we shall have text-books inspired by the laudable ambition of bridging over a neglected education. These guides are good for those who need them, but they are not to be accepted in place of systematic study. Their writers would be among the first to say that while crutches were useful for the lame, legs were to be preferred.

Sound (not necessarily advanced) scholarship is the royal road to Pharmacy or to any other conceivable branch of learning; it breaks down future difficulty, gives certainty in all subsequent work and self-reliance. Before it the technicalities of those twin stumbling-blocks, Chemistry and Botany, disappear; and yet out of fifty Pharmacists who offer themselves for a modified examination, it will happen that not ten can read a physician's recipe in the language in which it is written. I should be grieved in the most serious manner were this sentence to be interpreted as either ill-natured or sarcastic—the fact is mentioned only in order to express a feeling of personal sorrow as to the amount of effort implied in *thus* passing the ordeal.

Mathematics, by parallel mode of reasoning, may be said to produce identical results; but to many they are a sealed book. Let us not dilute our energies in fighting over the relative merit of classics and mathematics; whether one or the other be preferred, let us agree upon the one main point. Give the key to knowledge, a trained and disciplined mind, and fear not but that the student entering on life will thus be best prepared to unlock whatever door a kind Providence may offer.

CHEMICAL BUTCHERS.

WE lately read a letter in the *British Medical Journal* on the well-worn subject of the relations of druggists and doctors, signed by Percy Leslie, M.D., of Birmingham, which at least was calculated to afford some little amusement to both of these classes. One could hardly fail to recall the soliloquy of Caractacus at Rome, when this authority gravely announces that "any injury to our profession, arising from quacks and illegal practitioners, is nothing in comparison with the continual drain on our resources occasioned by the counter-prescribing of facetious druggists' apprentices." We have long held the members of our trade at Birmingham in high esteem as thorough business men and clever chemists; but we had not been hitherto aware that their apprentices were so unusually smart as to have become dangerous rivals to fully qualified physicians like Percy Leslie, M.D. But the chief grievance which afflicts this desponding physician is, that the New Pharmacy Act, while it "appears amply to protect them (the chemists) against all intruders, leaves them latitude enough to intrude themselves on everybody's business to their heart's content; so that, as occasion offers, they may be grocers, tallow-chandlers, tobacconists, fancy dealers, scientific instrument vendors, or anything else they like, not omitting dentists, surgeons, and consulting physicians (at home)." Dr. Leslie has estimated our ambition too moderately. We accept, with certain limitations, the little catalogue of our varied attainments given above. We could, without a blush, add another list to this, equally long, and while we should not fail to include in it our new occupation of wine-merchants, we should not forget to describe ourselves as very genteel butchers.

The meat trade, with which we are connected, is, of course, the sale of extract of meat and its preparations, and we have been quite astounded at the enormous quantity of this comparatively recent preparation, which we find must be consumed, from the description which we lately met with, in the *Buenos Ayres Standard*, of the factory where one of our large companies carries on its operations. The "Liebig Company," as we need not inform our readers, manufacture the whole of their extract from South American oxen, the supply of which is simply inexhaustible. They have, it seems, not long ago erected a new building, with machinery, and all appliances, on an immense scale. This is situated on the River Uraguay, near the town of Fray Bentos. Here some 800 persons are employed, who, with their wives and families, clergyman, schoolmaster, and other retainers, make up quite a little colony, numbering altogether about one thousand five hundred souls. Nearly 20,000 bullocks are grazing in fields around, all the property of the company, new recruits being constantly added to supply the place of about 400 a day, which are abstracted to feed the factory. A month or two generally suffices to bring the beasts into proper condition, for passing through the various processes of slaughter, digeration, "high-pressure," ebullition, evaporation, and, in short, extraction, until at last the animal finds himself minus his bones and blood and fibrine, securely potted in a few little gallipots. Four machines are employed to cut up the meat, which is then "digerated," that is, if we may use the expression, masticated by machinery, and every particle of juice drawn off, which can be extracted by a pressure of 75lbs. on the square inch. This liquid has then to be conducted to the fat-separating vessels where it is operated upon, while hot, with as little delay as possible, in order to avoid the danger of decomposition. In other vessels, which are next reached, the juice is clarified to remove the albumen and phosphate of magnesium, and it is now ready for filtration and subsequent evaporation to the proper consistence. The last operation is, of course, one that requires considerable attention and judgment, and at this factory it is conducted by means of a most ingenious invention of M. Giebert, the general manager, whose genius seems to adapt something to its required purpose whenever it is required. The liquid is evaporated *in vacuo* in fine large steel pans, in each of which are 100 steel discs, all of which rapidly revolving, expose more than two million square feet of evaporating surface every minute. When the evaporation is complete, and has been set aside for a day or two, the extract is prepared, and after being analysed by Dr. Seekamp, the chemist of the establishment and Baron Liebig's representative, it is packed in large tins and shipped to Europe.

Such is the brief outline of the Liebig Company's method of conducting the very important manufacture which has so rapidly grown up, and which certainly seems to us to be the best and most economical method of utilising the vast herds of cattle of one hemisphere, and transferring these to regions where they will acquire a value they have not formerly possessed. Truly, chemistry is, of all the sciences, the one to which we must turn for practical, social economy.

ON THE MEANS OF IMPROVEMENT FOR YOUNG PHARMACISTS.

BY PROFESSOR EDWARD PARRISH.*

QUERY 17th.—"What is the best scheme of Practical Instruction for young men preparing for the business of the Pharmacist, aside from the necessary service in the shop, with special view to those who are unable to attend a College of Pharmacy?"

THE class of young men referred to in this Query as "unable to attend a college of pharmacy," must, it seems to me, be very small, as even those compelled by adverse circumstances to struggle with poverty during minority, may surely acquire the small amount required to take a college course, after passing through their apprenticeship, and receiving the salary of clerks for a few years. Many such annually seek the colleges, impressed with the conviction that it is only by thus completing their professional training, in a regularly chartered institution, that they can properly go before the public as experts. It would be most desirable, indeed, that none but experts should be allowed to carry a diploma from our colleges, but our present systems of instruction are too incomplete, as yet, and many of our students enter them with far too little previous mental training to insure such thoroughness as every well wisher of our profession must desire.

The leading features in the professional training of a pharmacist are such as pertain to almost all pursuits. Patient industry and application, and a real desire to learn, well conceived and thoroughly maintained throughout those periods of life most fitted for the acquisition of knowledge and skill, will insure success.

In place of any detailed scheme of practical instruction we may best consider, under three general heads, the obvious means of improvement within reach of every apprentice in a drug store, however indifferent to his interests his employer may be, and however restricted his means of improvement.

First Observation.—The cultivation of the senses of sight, touch, taste, and smell is of prime importance to the pharmacist, as it is indeed to every dealer in merchandize. The well trained dry goods merchant is so accustomed to every shade of colour and surface that he will detect differences in cloths, or calicos, or silks quite unobserved by the eye of one not accustomed to such nice discrimination. It is said that in the great marts for the wine trade professional tasters are employed, at large salaries, whose palates are so cultivated by use that they can not only distinguish any one kind of wine from another, but can designate almost the precise age of a specimen, and with certainty guard their employers against the least adulteration or sophistication. These instances show what may be attained by cultivating the senses, so obvious a branch of professional education, that no argument is needed to show its necessity to the young man who would not only know drugs and preparations by their sensible properties, but also learn to detect every appearance indicating their variance from standard qualities. In this connection I would allude to an aid to the eye, which commends itself to all who can command it—the microscope. By this little instrument, now so wonderfully perfected, the intricacies of structure are so laid open as to increase immensely the ability of scrutiny by the eye. A student's microscope can be purchased for 8.00 dols., which will not only serve an admirable practical purpose in examining drugs, but will afford an inexhaustible fund of entertainment and instruction during intervals of otherwise unemployed time.

Second. Experiment.—The little word *try* conveys a lesson which every one should learn at the very outset of his course. Every prescription compounded, every preparation made should indeed be regarded as an experiment; the circumstances of any two manipulations cannot be precisely the same, the results must therefore vary more or less, and lessons of deep scientific import may often be learned by the attentive manipulator, in the course of his daily duties. It is, however, by premeditated and well directed experiments that practical knowledge is best acquired. Questions are constantly presenting themselves to the inquisitive pharmacist, which must be systematically approached by a series of tests so intelligently applied that their aggregate results will either furnish an answer or prove our inability to furnish one.

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* Communicated to the American Pharmaceutica Association.

The characteristics of the drugs we daily handle should not only be the subject of careful physical scrutiny, but of chemical tests. Our Pharmacopœia indicates many of these so exactly, and in language so devoid of technicalities, that the merest tyro may practise them, and with apparatus so simple and easily attainable, that no excuse is left for neglecting this obvious means of improvement.

Finally. Reading.—Blessed agencies are good books in every scheme of education. What wonderful facilities for improvement do these furnish in the present day, as compared with any previous period.

In chemistry and pharmacy, notwithstanding the immense increase of the domain of these sciences, ample text books have brought the leading principles within the reach of all, while the U. S. Dispensatory, found in the humblest drug store is the depository of such stores of knowledge, so conveniently arranged, that it may well be the companion of every student, till he has at least once gone over its pages; if possible, having one more advanced in its study to examine him upon its leading facts, until they are as much as may be stamped upon his memory. In what I have thus sketched in regard to self education for the duties of the shop and laboratory, I must not be understood as ignoring the importance of an experienced and sympathing preceptor to aid, encourage, and stimulate the student—a man who has taken an apprentice not alone to exact from him four or five years of drudgery and toil, but who acknowledges the obligation to develop in him those facilities which will make him useful, successful, and honourable in his profession. The student who has fallen into the hands of such a master, has a motive to which very many of our young men are strangers. To him whose hard lot is to work sixteen hours a day, compelled to steal from sleep and from the usual intervals of recreation the hours necessary for experiment and study, and to unravel the difficulties of his novitiate by his own wits, or those of his fellow apprentices, I would suggest the solace of society. Why might not six or eight young men, engaged in drug stores in the same town, organize for improvement in their business? Let them unite their several pieces of apparatus into a practical laboratory, combine their books into a library, and throw their talents and acquired knowledge into a common stock. Good times they would have on long winter evenings,—more profitable discussions than those of the neighbouring bar-room,—their friendships would be cemented by kindred motives and pursuits, and ennobled by the glorious consciousness of adding to their own and each other's means of permanent enjoyment and usefulness.

IMPURE WATER AND CHOLERA.

IF any confirmation were required of the theory which ascribes to impure water the power of propagating cholera, it is surely to be found in the report of the Sanitary Commissioner to the Government of India for 1867. It appears that in the early part of the year, vast numbers of pilgrims were attracted to the great fair in the town of Hurdwar, which is situated on the Ganges, about 100 miles northward from Delhi. One object of the pilgrimage seems to have been that of bathing in the river, an act of devotion to which, one would think, there could be no possible objection, especially as a portion of the stream was set apart for the purpose. But it seems that there is a very unpleasant condition attached to the ceremony, viz., that each pilgrim shall drink a little of the water before leaving it, and this duty is considered so important, that some of the more enthusiastic of the pilgrims will swallow as much as they can take up in their two hands, and will even indulge in repeated draughts. The state of the water after many thousands of persons had bathed in it, may be more easily imagined than described, and when it is borne in mind that the double ceremony of bathing and drinking took place under the burning sun of India, no surprise can be felt that the result was a frightful outbreak of cholera amongst the wretched devotees, and the subsequent extension of the pestilence to the various towns and villages in their several homeward routes.

Those who travelled south-east, through Rohilcund and Oude, conveyed the disease to Morahabad, Bareilly and Shajehanpore, at which places a vast number of deaths occurred in about a month, (from April 15 to the middle of May,) although the district officer states that not a single death from cholera had taken place in the locality previously to the return of the pilgrims. Dr. Adam Taylor reports from the Delhi district, 2,590 cases, and 1,436 deaths from cholera, *immediately following* the visit of these people. The railway officials, police, and others who came into contact with them, appear to have suffered very severely. Taking Hurdwar as the centre, there are fifty-one places mentioned in the report as having been attacked with cholera immediately after the visit of the pilgrims, although not a single case had occurred in any of them before that time.

We thus have a direct connection established, between impure water and cholera, which would appear sufficiently conclusive to satisfy the most incredulous.

Nothing is wanting to complete the chain of evidence. There is first the known fact of the contamination of the water with fœcal products; then the actual drinking of the water so contaminated; the immediate outburst of cholera amongst the persons who had drunk the water; the communication of the disease to the various towns along the lines of route chosen by the infected persons, and lastly, the immunity from cholera enjoyed by other places, in close proximity, but not on the direct lines of route.

All these facts tend to make out as clear a case as could well be desired, and they also serve to throw additional probability upon the water theory, as regards the attack of cholera, by which the east end of London was visited in 1866.

The moral of this story of the Hurdowar outbreak is obvious. Our cisterns, which we are too apt to neglect, should be regularly cleaned, and the water we drink should be purified by filtration. Whether a really good filtering medium is capable of holding back the insiduous cholera poison is a question, as yet, unanswered, but the experiments that have been made with animal charcoal, and the composition known as "silicated carbon," prove that water contaminated with sensible, feculent, and putrescent matters may be effectually purified by filtration.

HAIR DYES AND WASHES.

THE medical journals are condemning the use of hair dyes and washes of doubtful composition. As the publication of Mr. Matthews's Analytical Reports is delayed, the following extracts will be read with interest:—

In the British Medical Journal of last Saturday, we read:—

"The frequent impunity with which leaden and other metalliferous hair-dyes are used, when only applied at intervals, has led to the introduction of a still more dangerous class, called hair-restorers, in which a slower action of lead is employed to blacken the hair by daily applications. The most romatically named hair-dyes and restorers are just so many solutions of lead, mercury, silver, or copper, combined with mordants or decomposing agents. Those of nitrate of silver destroy the hair, but do not injure the health. Mr. Erasmus Wilson tells us that one of the most largely used hair-restorers contains as much as a drachm of acetate of lead to half a pint; it is sold for more guineas than it is worth pence in a point of money value. Leaden combs, used daily, produce also insidious forms of lead-poisoning. Schott publishes, in the *Gazette Médicale de Paris* (1864), an instructive post-mortem examination of a fatal case. Those who have used some of those poisonous preparations with impunity for a number of years should yet remember the fate of Mademoiselle Mars, who also dyed her hair, in the hope of eternal youth, and succumbed in one night, under cerebral disturbance produced by a new application. The pearl-white powders, which are becoming more and more fashionable for giving the complexion the dull Parisian whiteness of skin—the *teint mat*—are equally dangerous, and produce numerous poisonings, especially amongst dramatic artists. There are many innocuous powders which answer the purpose; but carbonate of lead adheres so much better, that it is still the favourite, as it was when Ovid denounced it in his *Ars Amoris*, and Martial in his Epigrams.

The following article is extracted from the *Lancet*:—

"Considering the number of advertisements of preparations for the hair with which almost every paper we take up teems, promising speedy and infallible remedies for every defect or deficiency, it is not a little remarkable and contradictory that one should still behold amongst one's friends and neighbours so many grey and bald heads. As far as we can judge, the number is not less now than it was when we ourselves were young, and before our parting became wide or our hair tinged with silver grey. Is the hair grey?—forthwith one tribe of advertisers promises to restore it to its original colour in almost less than no time. Has the scalp become denuded for years of its chief ornament?—another set offers to clothe it afresh with rich and luxuriant tresses. Is the hair lank and straight and lustreless?—a third class of hair-restorers advertises a variety of nostrums for rendering it curly, glossy, 'beautiful for ever.'

"The fact that the majority of hair dyes and washes are made up of constituents which not only injure the hair, but are capable, if absorbed, of seriously affecting the health, is pretty widely known; and denunciations of these hair preparations have from time to time appeared in the public press. These denunciations, however, have been for the most part too vague and general to effect much real good. The advertisements go on much as they did before, and the public still continue to be purchasers. In the case of adulteration of articles of food and drink we found that merely general statements produced little result, but that when the vendor or manufacturer was made personally responsible the deterring effects were rapid and marvellous; and the same remark is equally applicable to the present subject.

"One of the best known and most extensively advertised preparations for the hair is Mrs. S. A. Allen's World's Hair Restorer. On the label it is affirmed that it is the 'best' of all hair restorers; and the reasons given for its being the best are—'Because it contains no nitrate of silver, nor any other injurious ingredient. Because it does not dye the hair, but acts directly on the roots, giving them natural nourishment. It contains the specific aliment which is the life of the hair, and in this way the natural colour is restored.'

"We will now put these statements to the test by reference to the actual composition of the article. We find, then, that it is composed of acetate of lead, sulphur, and glycerine. Now lead, while it is one of the most frequent constituents of hair dyes, is also one of the most, if not the most, injurious. It will thus be seen how utterly worthless are the statements above quoted, and that the assertion as to the preparation containing 'the specific aliments which is the life of the hair' is a mere fiction.

"The detection of lead in a hair dye or wash is very simple, and may be readily effected by adding a few drops of solution of iodide of potassium to a small quantity of the dye, when, if a soluble salt of the metal be present, it will be revealed by the curdy yellow precipitate immediately produced."

Abstracts of Foreign Papers.

INFLUENCE OF BILE ON THE SALTS OF QUININE.

IN the *Archives de Médecine* we find that a mixture of bile and sulphate of quinine gives rise to a rapid and reciprocal decomposition; sulphate of sodium, glycocholate of quinine, and an excess of glycocholic acid resulting from the re-action. Glycocholate of quinine has the appearance of a resinous, dense mass, insoluble at ordinary temperatures in water and diluted acids, soluble in ammonia and alcohol, and difficultly soluble in caustic potash, although a double combination is effected by the prolonged action of this alkali. If a mixture of glycocholate of quinine and a strong acid, such as sulphuric acid, is heated, the quinine separates, and coloïdic acid appears to be formed. The salts of quinine may be absorbed by the stomach; if they pass into the intestine they are rendered ineffectual, in consequence of the insoluble compound they produce when mixed with bile.

PREPARATION OF PERMANGANATE OF POTASSIUM.

M. STOEDALES communicates the following method of preparing permanganate of potassium to the *Journal de Pharmacie*. By the ordinary method of decomposing the manganate of potassium by ebullition with water, a third of the manganese is lost by precipitation as hydrated peroxide:

$$\underset{\text{Manganate.}}{3MnK_2O_4} + 3H_2O = \underset{\text{Permanganate.}}{MnKO_4} + MnO_2.H_2O + 4KHO.$$

By the intervention of chlorine the permanganate may be procured without loss of manganese:

$$MnK_2O_4 + Cl. + MnKO_4 + KCl.$$

Manganate of potassium prepared according to the ordinary method, is treated with its own weight of water, and a similar quantity of water added after it has been thus disintegrated. A current of chlorine is now passed through the solution, accompanied with continuous stirring, until it has become red, when it is diluted with four parts of water; it is then allowed to stand, filtered through powdered glass, and evaporated to one-fifth, when the permanganate of potassium crystallises on cooling.

KREATININE IN PUTRIFIED WHEY.

M. Commaille gives in the *Journal de Pharmacie et de Chimie* a description of some experiments, demonstrating the presence of kreatinine in putrified whey. Some filtered whey having been kept about a year was again filtered, evaporated over a steam bath, and treated with alcohol, the part soluble in which being successively evaporated and redissolved in alcohol, increasing in strength, yielded numerous crystals, presenting, under the microscope, the form of rectangular prisms, soluble in water and alcohol, but insoluble in ether; with these crystals the characteristic zinc and silver compounds were formed. The author attributes the presence of kreatinine to the kreatine previously existing in the milk, in fact, kreatine would yield kreatinine by the simple withdrawal of one molecule of water:

$$\underset{\text{Kreatine.}}{C_4\,H_9\,N_3\,O_2} - H_2\,O = \underset{\text{Kreatinine.}}{C_4\,H_7\,N_3\,O}$$

The author remarks that the presence of kreatine in milk establishes a new analogy between this secretion, blood and flesh.

SYRUP OF VIOLETS PREPARED FROM THE DRIED PLANT.

M. Bouilhon gives the following recipe in the *Bulletin Therapeutique*, for preparing syrup of violets from the dried leaves, having all the qualities of that prepared from the fresh flowers :—

Boiling distilled water . .	100 grammes.
Dried violet petals . . .	2 „
Citric acid, about . . .	5 milligrammes.

Infuse for four hours in a tin vessel, strain through linen previously moistened with distilled water, and wash the residue with water, so as to make up to 100. Make the syrup in a close vessel over a water-bath, employing 180 of sugar to 910 of the infusion of violets.

NEUTRAL SOLUTION OF FERRIC CHLORIDE (PERCHLORIDE OF IRON).

M. Bouilhon, in the *Repertoire de Pharmacie*, describes the following method of preparing a neutral solution of perchloride of iron. Diluted hydrochloric acid is digested at a slight heat with an excess of iron, until hydrogen gas has almost ceased to be disengaged; the solution of ferrous chloride thus obtained is evaporated, and set aside to crystallize. In about twelve hours the mother liquor is decanted and the crystals are drained and washed with a small quantity of distilled water, and dissolved in previously boiled distilled water. The solution is filtered and submitted in a dark place to a slow current of chlorine; the solution passes from its green tint, and becomes, at first, almost black, ultimately yellowish-brown. When the whole of the ferrous chloride has been thus converted into the ferric salt, as indicated by the solution ceasing to precipitate Prussian blue from a small quantity of solution of ferricyanide of potassium the current of chlorine is stopped. The excess of chlorine is absorbed by the successive addition of small quantities of solution of ferrous chloride at intervals of several hours, until a slight excess is indicated by the ferricyanide of potassium test.

TURPENTINE AS AN ANTIDOTE TO PHOSPHORUS.

We find an account of the following curious case in the *Répertoire de Pharmacie.* A workman, sixty-six years of age, appears to have eaten three boxes of matches; to help the action of the poison he took, at the same time, a quantity of turpentine mixed with water. He suffered but little, and after a delay of twenty-one hours, received the attention of a medical man, who had only to deal with a somewhat troublesome constipation.

Corner for Students.

CONDUCTED BY J. C. BROUGH, F.C.S.

The chemical notation employed in this section is based upon the new system of atomic weights, unless the use of the older system is specially indicated. In the *British Pharmacopœia* the symbolic formulæ corresponding to those adopted here are printed in heavy Clarendon type. The chemical nomenclature generally used in this Corner for Students agrees with that adopted in the new edition of *Fownes's Manual of Chemistry* which is recommended as a text-book. To secure uniform results students are requested to accept the atomic weights given in the last column of the *Pharmacopœia* table of elementary bodies.

QUESTIONS.

I. Hydrargyri Iodidum viride, *B.P.*—What is the chemical name and formula of the yellow sublimate noticed in connection with the tests?

II. Ferri et Quiniæ Citras, *B.P.*—What is the proper percentage of quinine sulphate in this preparation?

III. Combustion of Phosphorus.—If a *gramme* of phosphorus be burned in an excess of dry air what will be the weight of the product? If dry chlorine be substituted for atmospheric air, what will be the weight of the product?

IV. Hydrogen.—What volume of this gas, in cubic inches, at the temperature of 68° Fahr., and at the barometric pressure of 30 inches, is obtainable by the action of zinc, in excess, on 60 grains of sulphuric acid, H_2SO_4, properly diluted? [1 cubic inch = 16·386 cubic centimetres.]

V. Carbon Monoxide.—When carbon dioxide or carbonic acid gas is passed over red-hot charcoal, one-half of its oxygen is removed, and it becomes converted into the monoxide. Required the volume of carbon monoxide at 56·6° C. obtainable from 20 litres of the dioxide measured at the lower temperature of 14·5° C., but at the same pressure.

VI. Nitrous Oxide.—What weight of ammonium nitrate, in grains, is required for the production of one gallon of this gas measured at 50° Fahr. and 28·6 inches barometric pressure?

VII. Marsh Gas.—When 100 measures of marsh gas, CH_4, are mixed with 200 measures of pure oxygen in the eudiometer, and the mixture exploded by the electric spark 100 measures remain. Explain this result with the aid of a symbolic equation. Now imagine the eudiometer to be exposed to a uniform temperature above 100° C., so that the gaseous mixture and the gaseous product may be measured at this temperature, what will be their relative volumes?

VIII. Effects of a Balloon Ascent.—A vessel containing exactly one litre of air, and closed by a stop-cock, is placed in the car of a balloon. Before starting, the temperature is observed to be 22° C. and the barometric pressure to be 724 mm. The balloon rises, and at a point when the temperature is observed to be 7° C., and the barometric pressure 495 mm., the stop-cock is opened, but when air ceases to escape it is again closed. The balloon descends, and when it reaches the earth the temperature and pressure are observed to be the same as at starting. If the stop-cock of the air vessel be now opened under mercury, what volume of mercury, in cubic centimetres, will enter the vessel, the level of the liquid being the same inside and outside the vessel? [The capacity of the vessel may be assumed to be unalterable by changes of temperature.]

IX. Specific Gravity of Cork.—A lump of iron weighing 2 lb. 4 oz. in air and 1 lb. 15 oz. in water is attached to a piece of cork; the two together weigh 2 lb. 10 oz. in air and 12 oz. in water. What is the sp. gr. of the cork?

X. Floating Piece of Cork.—A cylindrical piece of the same cork 20 inches in length floats upright in water. To what depth will it be immersed?

DATA.

Problems involving the consideration of the relation of gaseous volume to temperature and pressure should be solved by calculations based on the following data:—

Standards of Temperature and Pressure.—The *standard temperature* to which the densities of gases and vapours are referable is the melting-point of ice or 0° C., the zero of the Centigrade scale. The *standard pressure* is that indicated by a column of mercury 760 millemetres in height. [0° C. = 32° Fahr.; 760 mm. = 20·9 inches.]

Relation of Gaseous Volume to Pressure.—The *volume* of a gas is *inversely* as the pressure; consequently a change of pressure in the proportion of 700 to 750 is accompanied by a change of volume in the proportion of 750 to 700. For example, 1000 cubic centimetres of oxygen measured off when the mercury in the barometer stands at 700 mm. will measure, in round numbers, only 933 c.c. when the mercury rises to 750 mm., for

$$750 : 700 = 100 : 933.$$

A change of volume is necessarily accompanied by an *inversely* proportional change of *density*; hence, when 1000 c.c. are reduced to 933 c.c., the density of the gas is increased in the proportion of 933 to 1000, or 700 to 750. The *elastic force* of a gas is also *inversely* as the volume. The law of pressure may therefore be concisely expressed, thus:

> The volume of gas is *inversely* as the pressure; the density and elastic force are *directly* as the pressure, and *inversely* as the volume.

All gases, and all vapours of volatile liquids, when at temperatures remote from their points of liquefaction, are alike subject to this law.

RELATION OF GASEOUS VOLUME TO TEMPERATURE.—For equal increments of heat all gases expand alike, and the rate of expansion is uniform for all temperatures and for all states of compression. Vapours when at temperatures remote from their condensing points expand in the same regular manner. These propositions are not absolutely true, as different gases do not expand *exactly* a like at all temperatures, but the observed deviations from the hypothetical rule of uniform expansion are so small that they may safely be disregarded in ordinary volumetric determinations. Taking then the rate of expansion of air as the common rate we say:

> Every gas expands $\frac{1}{273}$ *of its volume at* 0° C. for every increase in temperature of one degree of the Centigrade scale.

Thus 273 volumes of a gas at 0°C. become 274 volumes at 1°, 275 at 2°, 276 at 3°, or $273 + t$ at $t°$. For example, one litre or 1000 c.c. of oxygen at 10° C. when heated to 15° will occupy the volume of 1017·668 c.c., for

$$283 : 288 = 1000 : 1017{\cdot}668.$$

RELATIVE WEIGTS AND VOLUMES.—The modern *atomic weights* of the *elementary gases* are the *relative weights of equal volumes* under the same conditions of temperature and pressure. Thus, 1, 35·5, 16, snd 14 are the relative weights of equal measures of hydrogen, chlorine, oxygen, and nitrogen respectively. Now, as 1 *gramme* of hydrogen, at the temperature of 0° C. and the pressure of 760 mm., occupies the volume of 11·19 litres, the atomic weights of the other gaseous elements necessarily express the numbers of *grammes* required to yield this definite volume at the standard temperature and pressure. With a few exceptions, probably only apparent, the *molecular weights* of *compound gases* are likewise *the relative weights of equal volumes* measured at the same temperature and pressure. The volume corresponding to the molecular weight of a compound is, however, *twice as great* as the volume corresponding to the atomic volume of an element; thus, 16 *grammes* of marsh gas ($CH_4 = 16$) will occupy the double volume of 22.38 litres, while 16 *grammes* of oxygen ($O = 16$) will occupy the single volume of 11·19 litres. At temperatures considerably above their condensing points, *vapours* are comparable to the permanent gases; thus, 32 *grammes* of sulphur vapour ($S = 32$) will occupy the space that 16 *grammes* of oxygen would occupy at the same temperature. Again, under similar conditions, 46 *grammes* of alcohol vapour ($C_2H_6O = 46$) and 44 *grammes* of carbon dioxide ($CO_2 = 44$) have equal volumes. [The vapour-densities of *phosphorus, arsenic, mercury,* and *cadmium* are anomalous. The combining volumes of phosphorus and arsenic are only *half* those of the other elements, so that $P_2 = 1$ vol., $As_2 = 1$ vol. The combining volumes of mercury and cadmium disclose an opposite deviation from the law, being *double* those of the other elements, so that $Hg = 2$ vols., $Cd = 2$ vols.]

ANSWERS.

[*See Questions in December number, page* 801.]

I. CALX CHLORATA, *B.P.*—This compound is supposed to contain calcium hypochlorite, $CaCl_2O_2$, and calcium chloride, $CaCl_2$, the reaction involved in its production being thus symbolically represented:

$$\underset{\text{Calcium hydrate.}}{2CaH_2O_2} + \underset{\text{Chlorine.}}{Cl_4} = \underset{\text{Calx chlorata.}}{CaCl_2O_2.CaCl_2} = \underset{\text{Water.}}{2H_2O}$$

[There are good grounds for the belief that the product is not a mere mixture of the hypochlorite and chloride, but a true chemical compound called *calcium chloro-hypochlorite,* in which the univalent radicals Cl and (ClO) are combined with bivalent calcium, thus $Ca''Cl(ClO)$.]

II. PLUMBI ACETAS, *B.P.*—The yellow precipitate obtained with potassium iodide is *lead iodide,* PbI_2, potassium acetate remaining in solution. The white precipitate obtained with sulphuric acid is *lead sulphate,* $PbSO_4$, acetic acid being set free.

The lead contained in 379 grains of the official lead acetate $[Pb(C_2H_3O_2)_2.3H_2O = 379]$ would be entirely precipitated as oxalate, PbC_2O_4, by 2,000 grain-measure of the volumetric solution of oxalic acid—a quantity corresponding to 126 grains of the crystallised acid ($H_2C_2O_4.2H_2O = 126$); hence 37·9 grains of the salt would be decomposed by 200 grain-measures of the solution. The Pharmacopœia test (38 grains to 200 grain-measures) therefore indicates with sufficient accuracy the molecular weight of the crystallised salt.

III. SULPHURIC ACID.—The weight of the acid solution required for the neutralisation of 20 *grammes* of lime is 44·923 *grammes.*

The neutralisation of slaked lime by sulphuric acid is represented by the following equation:

$$CaH_2O_2 + H_2SO_4 = CaSO_4 + 2H_2O$$

Abstracting the elements of a molecule of water from each of the reacting bodies we have calcium oxide or lime, $CaO = 56$, and sulphuric oxide, $SO_3 = 80$; consequently if x be the weight of SO_3 required to neutralise 20 *grammes* of CaO, then

$$56 : 20 = 80 : x;\ \therefore\ x = 28{\cdot}571 \text{ grammes of } SO_3.$$

Now since the acid solution contains 63·6 per cent. of SO_3 the required weight is found by the proportion

$$63{\cdot}6 : 100 = 28{\cdot}571 : x;\ \therefore\ x = 44{\cdot}923 \text{ grammes.}$$

IV. HYDROCHLORIC ACID.—The solution contains 7·225 per cent. of HCl. The reaction of silver nitrate and hydrochloric acid is represented by the following equation:

$$AgNO_3 + HCl = AgCl + HNO_3$$

showing that 143·5 parts of silver chloride ($AgCl = 143{\cdot}5$) are precipitated by 36·5 parts of hydrochloric acid ($HCl = 36{\cdot}5$); hence the weight of HCl in the solution may be found by the proportion:

$$143 : 5{\cdot}68 = 36{\cdot}5 : x;\ \therefore\ x = 1{\cdot}445 \text{ grammes.}$$

Then since 20 *grammes* of the solution correspond to 1·445 *grammes* of HCl, 100 *grammes* of the former will correspond to $1{\cdot}445 \times 5 = 7{\cdot}225$ *grammes* of HCl; in other words, the solution contains 7.225 per cent. of hydrochloric acid.

V. QUANTITATIVE ANALYSIS.—The salt is *ferric phosphate,* the symbolic formula of which is $Fe_2P_2O_8$ or $Fe'''PO_4$.

As 160 parts of ferric oxide ($Fe_2O_3 = 160$) corresponds to 112 parts of iron ($Fe_2 = 112$) 52·632 parts of the former obtained on analysis of the unknown salt, correspond to x parts of iron in the proportion:

$$160 : 52{\cdot}632 = 112 : x;\ \therefore\ x = 36{\cdot}842 \text{ pts. Fe.}$$

Then as 222 parts of magnesium pyrophosphate ($Mg_2P_2O_7 = 222$) correspond to 62 parts of the phosphorus ($P_2 = 62$), 73·75 parts of the pyrophosphate correspond to y parts of phosphorus in the proportion:

$$222 : 73{\cdot}75 = 62 : y;\ \therefore\ y = 20{\cdot}597 \text{ pts. P.}$$

Then as oxpgen is the remaining constituent of the unknown salt, the percentage of this element is found by subtraction, thus:

$$\begin{array}{rll} x = & 36.842 & \text{parts of iron.} \\ y = & 20{\cdot}597 & \text{,, phosphorus.} \\ 100 - (x + y) = & 42{\cdot}561 & \text{,, oxygen.} \\ \hline & 100{\cdot}000 & \end{array}$$

These percentages divided by the atomic weights of the elements to which they relate give numbers proportional to the numbers of atoms, thus:—

$$36{\cdot}842 \div 56 = 0.658$$
$$20{\cdot}587 \div 31 = 0{\cdot}664$$
$$42{\cdot}561 \div 16 = 2{\cdot}660$$

These numbers are in the proportion of 1, 1, 4, or 2, 2, 8, and therefore indicate the formula of ferric phosphate.

VI. EXPANSION OF AIR BY HEAT.—The volume of mercury that will enter the vessel under the conditions stated will be 227·882 cubic centimetres.

The volume of mercury necessarily corresponds to the *difference* between the volume of the air at 100° C. and its volume at 15°. Now as 273 volumes of air at 100° C. become 273 + 15 at 15°, and 273 + 100 at 102°, one litre or 1000 cubic centimetres of air at 100° will be reduced to x cubic centimetres at 15° in accordance with the proportion

$$373 : 288 = 1000 : x;\ \therefore\ x = 772{\cdot}118 \text{ c.c. at } 15°.$$

Then 1000 − 772·118 = 227·882 cubic centimetres, the difference between the volume of air at 100° and its volume at 15°.

VII. CARBON DIOXIDE.—The weight of calcium carbonate required for the evolution of 10 pints of carbon dioxide at 59° Fahr. is 371·2 grains.

The reaction is represented by the equation:

$$CaCO_3 + 2HCl = CaCl_2 + CO_2 + H_2O$$

from which it will be seen that 100 *grammes* of calcium carbonate ($CaCO_3 = 100$) yield 2 standard volumes or 22·38 litres of carbon dioxide (CO_2 = 2 volumes) at the standard temperature and pressure. Now the formula for converting degrees Fahrenheit into degrees Centigrade gives 15° C. as the equivalent of 59° Fahr., consequently the volume of gas at this temperature corresponding to 22·38 litres at 0° C. may be found by the proportion:

$273 : 273 + 15 = 22·38 : x ; \therefore x = 23·61$ litres at 15° C.

Again 10 pints $= 10 \div 1·76077 = 5·679$ litres, and since 100 *grammes* (= 1543·235 grains) of the carbonate yield 23·61 litres of the gas at 15° C. (= 59° Fahr.), the weight of carbonate required to yield 5·679 litres (= 10 pints) at the same temperature is found thus:

$23·61 : 5·679 = 1543·235 : x ; \therefore x = 371·2$ grains.

[Formulæ and equivalents adapted for facilitating calculations involving the use of Centigrade and Fahrenheit degrees or different systems of weights and measures are given in the *Chemists' and Druggists' Almanack and Pharmaceutical Text Book*, 1869.]

VIII. CHLOROFORM VAPOUR.—According to theory the weight of a litre of chloroform vapour at the temperature of 100° C., and standard pressure would be 3·908 *grammee*.

Since 119·5 *grammes* of chloroform vapour ($CHCl_3 = 119.5$) at 0° C. = 2 standard volumes or 22·38 litres, the volume of 119·5 *grammes* at 100° is found by the proportion:

$273 : 273 + 100 = 22·38 : x ; \therefore x = 30·578$ litres.

Then if 30·578 litres at 100° weigh 119·5 *grammes*, the weight of a litre at the same temperature is found thus:

$30·578 : 1 = 119·5 : x ; \therefore x = 3·908$ grammes.

IX. ICE.—The weight which the block of ice is capable of sustaining is 1739·13 *grammes*.

If the density of pure ice be taken as 0·92, and that of ice-cold water as unity or 1·00, every 92 *grammes* of ice will obviously be able to sustain a weight of 8 grammes (100 — 92 = 8), consequently the weight which can be sustained by 20 kilogrammes (20,000 *grammes*) will be found thus:

$92 : 20{,}000 = 8 : x ; \therefore x = 1739·13$ *grammes*.

X. BLOCK OF STONE.—The weight of the stone when immersed in water is 12800 oz. or 800 lb., and when lifted out of the water 20800 oz. or 1300 lb.

Since the bulk of the stone is 8 cubic feet (2 × 2 × 2 = 8), and its specific gravity 2·6, its weight when lifted out of the water will be 1000 × 8 × 2·6 = 20800 oz., taking the weight of a cubic foot of water as 1000 oz.

Again, as the loss of weight on immersion is the weight of the bulk of water displaced, the weight of the stone when immersed will be 20800 — 8000 = 12800 oz.

PRIZES.

The First Prize for Solutions of Problems printed in our December number is awarded to

W. M. MC.NAUGHTON, at Messrs. Gratton & Co.'s, Belfast.

This student has solved every problem with masterly precision, and has explained his methods of proceeding with remarkable clearness and conciseness.

The second Prize is awarded to

T. WILSON, 13, Finsbury-street, Leeds,

who has also solved every problem in a satisfactory manner.

A third competitor has been equally successful in obtaining correct results, and as his solutions are admirably expounded, we cannot overlook his claims to special consideration. We therefore award an Extra Second Prize to

J. A. KENDALL, 32, Waterloo, Blythe.

The solutions lately received show the good results of mental exercise. Some of the Problems given in our December number were designed to test the weak points which had been detected in the chemical and mathematical attainments of our students, but the solutions prove that these weak points exist no longer. Thus in November we gave a problem in analytical chemistry which elicited but few solutions that could be deemed satisfactory, yet a similar problem in December is attacked and solved by the majority of the competing students.

The improvement of students necessitates an increasing abstruseness in the problems, but we may remind beginners that the hope of winning a large prize ought to be only a secondary inducement for their repeated afforts. The primary inducement should be the knowledge that every attempt to solve a scientific problem, whether successful or not, is a step forward on the uphill road which leads to professional distinction.

Marks awarded for Answers.

	I.	II.	III.	IY.	V.	VI.	VII.	VIII.	IX.	X.	E.	Total
McNaughton(1*st prize*)	6	8	8	8	10	8	9	8	4	4	7	80
T. Wilson (*2nd prize*)	6	8	8	8	10	8	9	8	4	4	6	79
Kendall (*extra prize*) ..	6	8	8	8	10	8	9	8	4	4	5	78
A. P. S.	6	8	7	7	10	8	9	8	2	4	5	74
J. Gregory	6	8	6	8	10	8	9	8	0	4	5	72
J. Paulin	6	8	7	8	8	4	9	8	4	4	5	71
A. Fraser	6	6	8	8	10	8	9	8	0	4	3	70
Spero	6	8	8	8	8	8	8	8	0	4	4	70
J. W.	6	8	8	8	10	4	6	8	4	4	4	70
A. E. I.	6	8	8	8	10	0	9	7	4	4	5	69
H. Habgood	6	8	6	8	10	0	9	8	4	4	5	68
Struggler	6	8	8	8	10	8	0	8	2	4	6	68
E. D. W.	6	8	7	8	10	8	0	6	4	4	5	66
J. Treherne	6	8	8	8	10	0	9	8	0	4	4	65
Solus	6	8	0	8	10	0	9	8	0	4	4	57
Tyro	6	8	7	8	10	0	0	8	0	4	4	55
J. D. D. Thomas ..	6	8	8	8	10	0	0	7	0	4	3	54
Junior Apprentice ..	6	4	8	8	—	—	—	—	4	2	2	34
J. Tully	0	8	6	7	7	7	0	0	4	0	0	32
W. Berry	0	4	6	0	0	0	0	0	0	0	0	10

TO CORRESPONDENTS.

⁂ All questions forwarded to us for publication in this "Corner for Students" should be accompanied by the answers which the propounders believe to be correct. As a rule, numerical results should be worked out to three decimal places, due allowance being made for large remaindrrs. Communications should reach us at least *ten days* before the date of publication, and include the names and addresses of the writers.

Struggler.—VII. Your amended solution is defective, as it does not include the essential discrimination of grammes and grains. IX. The weight sustained by 20 kilogrammes, not grammes, was required.

A. P. S.—III. The symbolic formulæ of sulphuric oxide and lime, eccording to the old or the modern notation, are SO_3 and CaO, respectively. IX. Kilogrammes. not grammes, were mentioned in the problem. You do not always make due allowance for large remainders in decimal fractions.

E. D. W.—VII. Decimal points misplaced, the results being only one-tenth of the required weight. VIII. Decimal fraction wrong, probably, through careless transcribing

J. Gregoro.—III. Decimal fraction wrong. IX. The weight of ice capable of sustaining ·08 gramme is ·92 gramme, not 1 gramme.

J. Paulin.—I. The misuse of the word "molecule" in your solution of this probldm must be noted. The molecule of an element is comparable with the molecule of a compound, and usually consists of two atoms; thus the molecule of chlorine is Cl_2, and has the same volume as a molecule of hydrochloric acid HCl; consequently, when you speak of 4 molecules of chlorine you indicate 8 atoms. V. The formula is that of ferric phosphate, the formula of ferric pyrophosphate being $Fe_4P^5O^{31}$. VI. Proportion incorrectly worked out.

J. W.—VIII. Result not quite correct, owing to an error of calculation.

Solus.—I. Reaction might have been more succinctly expressed. III. Decimal point misplaced, the result obtained being only one-tenth of the required weight. VI. Air expands 1-273rd *of its volnme at the standard temperature.* for each degree centigrade, the problem therefore involves the consideration of the relation of volume to three different temperatures indicated by 0, 15, and 100 degrees. The litre is equivalent to 1000 cubic centimetres, but your calculations are based on the extraordinary supposition that a cubic centimetre contains a million litres. You have evidently mistaken the cubic centimetre, which represents the petty volume of a gambler's die, for the cubic decametre, which represents the bulk of a fair sized dwelling-house. IX. See notice to J. Gregory above. We are glad to receive you in our corner, as most of your solutions are quite satisfactory.

Spero.—V. The formula is that of a well known salt, IX. See notice to J. Gregory above.

Junior Apprentice.—We reproduce the data required for calculations relating to gaseous volume.

J. D. D. Thomas.—VI. See notice to Solus (above) respecting the relation of volume to temperature. VII. Grammes taken as grains in the last proportion, IX. See notice to J. Gregory.

A. E. I.—VI. See notice to Solus eespecting the relation of volume to temperature. You take the volume at 15 degrees as the standard from which the fraction is derived.

J. Treherne.—VI. See notices to Solus and A. E. I. above. IX. The statement that ·08 grammes is sustained by ·92 grammes of ice is not consistsnt with the last part of your solution.

A. Fraser.—I. The formnla of lead iodide is erroneously represented with a single atom of iodine. IX. See notice to J. Gregory above. Your solutions should indicate the lines of reasoning more clearly.

W Berry—We advise you to study our solutions. Some of your errors may be traced to the misinterpretation of the modern notation, but others indicate the misapprehension of the principles of chemistry and physics. Read Roscoe's *Lessons in Chemistry*, or some other modern work, and do not be disheartened by failure.

H. Habgood.—VI. The capacity of the vessel being 1 litre, it cannot contain more than a litre of air at any temperature. We are delighted to notice a marked improvement in your solutions.

J. Tully.—I Symbolic equation wrong. V. The formula given is not that of ferric phosphate. VI. The heated air must fill the vessel under the conditions stated, consequently its volume is one litre. VII. In the solution of this problem you have strangely confused weights and volumes, and have obtained a monstrous result, VIII. and X. See our solutions.

Tyro.—VI. See notices given under this number to Solus, J. D. Thomas, and J. Tully. VII. Temperature miscalculated, for 59 degrees Fahr. = 15 degrees C. IX. See notice to J. Gregory above.

Books offered as First Prizes.

Attfield's *Introduction to Pharmaceutical Chemistry.* (Van Voorst.)
Conington's *Handbook of Chemical Analysis;* with Tables of Qualitative Analysis adapted to the same. (Longmans.)
Eliot and Storer's *Manual of Inorganic Chemistry.* (Van Voorst.)
Fownes's *Manual of Elementary Chemistry, Theoretical and Practical* (Churchill.)
Ganot and Atkinson's *Elementary Treatise on Physics.* (Longmans.)
Garrod's *Materia Medica;* with Modern Chemical Notation. (Walton.)
Noad's *Chemical Analysis, Qualitative* and *Quantitative.* (Reeve.)
Northcote and Church's *Qualitative Analysis.* (Van Voorst.)
Royle and Headland's *Materia Medica.* (Churchill.)
Williamson's *Chemistry for Students.* (Clarendon Press.)

[Any other scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.]

Books offered as Second Prizes.

Church's *Laboratory Guide for Students in Agricultural Chemistry.* (Van Voorst.)
Galloway's *First Step in Chemistry.* (Churchill.)
Hofmann's *Introduction to Modern Chemistry.* (Walton.)
Oliver's *Lessons in Elementary Botany.* (Macmillan.)
Potts's *Elements of Euclid.* School Edition. (Longmans.)
Roscoe's *Lessons in Elementary Chemistry.* (Macmillan.)
Wurtz's *Introduction to Chemical Philosophy.* Reprinted from the "Chemical News."

[Any other scientific book which is sold for about five shillings may be taken as a second prize.]

REVIEWS

DUSSANCE'S PRACTICAL GUIDE FOR THE PERFUMER.

A Practical Guide for the Perfumer: being a new Treatise on Perfumery the most favourable to Beauty without being injurious to the Health, comprising a description of the Substances used in Perfumery, and the Formulæ of more than one thousand Preparations, such as Cosmetics, Perfumed Oils, Tooth Powders, Waters, Extracts, Tinctures, Infusions, Spirits, Vinegars, Essential Oils, Pastils, Creams, Soaps, and many new Hygienic Products not hitherto described. Edited from Notes and Documents of Messrs. Debay, Lunel, etc., with Additions by Professor H. Dussance, Chemist, lately of the Laboratories of the French Government—*viz.*, the Mining, Botanical Garden, the Imperial Manufacture of the Gobelins, the Conservatoire Impériale of Arts and Manufactures; Professor of Industrial Chemistry to the Polytechnic Institute, Paris; Author of "A Practical Treatise on Matches, Gun-Cotton," etc., "A Complete Treatise on Tanning, Currying, and Leather Dressing," etc. etc. Philadelphia: Henry Carey Baird, Industrial Publisher, 406, Walnut-street. London: Trübner & Co., 60, Paternoster-row. 1868.

It is not long since we had to notice a work on Perfumes presented in the questionable guise of a drawing-room-table book. Nor was this the first treatise on the subject that had come to us under the authorship of a person better known to the world as an energetic vendor of the wares treated of, than as a devotee to the less lucrative pursuit of literature. It could scarcely be expected that authors of this sort would write much of practical service to our readers, and it was perhaps not to be wondered at, if an innocent suspicion clouded the mind for a moment after the perusal of the works alluded to, that possibly their object might have been less voluminously, but quite as effectually accomplished, through the advertising columns of the fashionable periodicals. But the Perfumer of to-day must, it seems, have allies even beyond the publisher. Are we not tenderly informed by advertisements that we may buy our kid gloves from Brown "ready scented"? and do not the fairer half of the community learn from the same instructive columns where to obtain Somebody's Patent Corset, "perfumed by Himmel, of the Strand" (Ach Himmel!). The publisher and the milliner are combining to help along these pushing gentlemen that can so well help themselves, and who shall foretel the next accession to the alliance? May we not yet have "the sixteen-shilling Sydenhams" similarly glorified by a rival firm in New Bond-street, who can boast precedence as to time in their devotion to trade literature?

Far be it from us to deprecate any honourable extension of trade, or to affect that sort of scrupulousness which seeks for blemishes in the doings of our neighbour; but the book now before us brings home old facts with new force, and we close it with something of the same sickening feeling that accompanies the perusal of the lying labels and circulars that seem to have become an integral part of a perfumer's stock.* Surely there is no reason why this should be so. Does not the world of flowers, which yields simple perfumes, provide names also for them, and when the art of the compounder is called into play, might not his ingenuity be taxed a little further to present the new product to his customers without a supplement of humbug? Does anyone really think better of a perfumer's wares for the tissue of questionable literary stuff that is circulated with them? Which is likely to contain the more commendable scent, the bottle neatly sent out with a simple inscription, "Lavender Water," or that crowded with epithets such as "treble-distilled," and the like?

Let invention have its way, find new luxuries for those who can afford them, put no bar on legitimate commerce; but let us recollect that there is a moral law beyond all these things. Pharmacists have an especial need to look to their own conduct in such matters; they are seeking increased confidence from the public and from the medical profession, and it behoves them to stand aloof from these worse than questionable practices. They appear trifles, it is true, at first sight, but they are fair indications of the spirit in which he conducts his business in particulars more important, but less under the eye of his customers.

Thoughts analogous to those above expressed passed in rapid succession through our mind after skimming the "Preliminaries" of Professor H. Dussance's compilation, whose massive title-page we have transferred in all its exuberance to the head of our notice. From a title-page one may sometimes judge a book, and if we had concluded from the indications this presents, that the work it ushered was not a very good one—nor perhaps very bad—but exceedingly pretentious—we might not have been far wide of the mark. If the compiler had been content to compile only, and had not been so determined by padding and little eccentricities in the numbering of the pages to make the material that would have formed a useful book of a hundred pages into a diluted volume of nearly four hundred, we should have left it with a higher opinion of his art. After reading the preface, which is tuned to a high pitch of morality and virtue, it really seemed to us that we had got at last the "Practical Guide" we had so long desired, one, to use the words of the preface itself, "free from the old beaten path of quackery and charlatanism." Our sense of satisfaction diminished a little in the first chapter, which is devoted to the "Classification of Perfumes," and it was rudely disturbed in that on their History. Take the following paragraph as an example of a good many pages in this "Practical Guide:"—

"The voluptuous Satraps of Asia lived all the time in an atmosphere loaded with the sweetest perfumes. The flambeaux which lighted their sumptuous parlors, in burning, spread delicious odors; their furniture was made of odoriferous woods; they mixed precious aromatics with their food and drink; artificial fountains were running in the middle of their apartments, and even on the heavy carpets they used as beds, sweet perfumes were thrown."

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* We were pleased to observe in the *Pharmaceutical Journal* some months ago a note from Mr. Hanbury, exposing and denouncing one of these "sensation" labels. The revelations of the law courts in Madame Rachel's case presented label and circular practices in perhaps their extreme development.

The chapter on "Manipulations" is not unworthy its immediate predecessor, and the information it contains is carefully adjusted to the capacities of the dullest learner. The section on "Decantation" is the shortest, and gives a very fair idea of the composition of the third division of the book:—

"*Decantation.* An operation, the object of which is to separate a liquid from solid substances deposited in it. To decant, pour slowly, sloping little by little the vessel containing the liquid; but in our judgment it is better to use a siphon."

Short as it is, our readers will probably think the paragraph might have been spared. "*Dis*coloration" sounds odd for the process that in English is generally called *De*coloration, and the author's fancy for unusual words crops out on many other occasions. One section is headed "*Epuration*," and what we should call a still and condenser is spoken of as an "*alembic*," with its "*cucurbit*," its "*head*," and its "*refrigeratory*," all in italics, too, that they may carry the greater weight. The hope inspired by the "more than one thousand formulæ" promised on the title-page, was all needed to carry us through these earlier portions.

There is but another chapter to complete the first section of the book, and it professes to contain an "Enumeration and Description of the most useful Perfumes." The reader will do best to avoid it, for the information it provides is in the last degree faulty, and in point of composition he will find only the result which might be expected from a compact between an author ignorant of English and a careless printer's apprentice. For instance, before we have quite recovered from the statement that CANADA BALSAM "only differs from turpentine in its odor," we are told that, "It is extracted in Canada from a kind of fur [!] tree called *Balsam of Gilead*, MECCA BALSAM (or *Judea*). It is a resin which exudes from a tree growing in Arabia the Happy." We give the two sentences, capitals, italics, spelling and all, as we find them, hoping that some considerate annotator will explain the puzzle to us.

A chapter on "Artificial Essential Oils" would scarcely commend itself to one whose chemistry was severe as to its definitions, and even a practical man guiltless of this higher learning would hardly see the fitness of including an Ammoniacal Solution of Sulphate of Copper, and the other coloured fluids used for show carboys, under the general heading of "Distilled Waters."

We might continue in this strain to the end of our notice, but we forbear, desiring to make a few comments on the Formulary, which constitutes two-thirds of the volume. After the assurance contained in the first paragraph of the preface, that Perfumery as an art has "freed itself from the old beaten path of quackery and charlatanism," it is disappointing to find the new and purer era ushered in by recipes for *Pommade d'Hebé for Wrinkles,—Egyptian Water,—Crême du Liban,—Modesty Bath,*—and a number of others, whose fitting place would be in the category of Madame Rachel's abominations.

The final chapter is devoted to "New and Perfected Products." There is not much in it to which the latter epithet can be applied; but amongst the products which are new to us one seemed worthy of trial, namely, "Veal grease," as a basis for pomades. There is some difficulty in obtaining calf's suet fit for rendering, at least, we have found butchers unwilling to separate it from the joints; but when purified it yields a very nice, hard, white fat, that only requires to be incorporated with almond oil to make a pomade of very firm consistence and low melting point. In practice it would probably be found necessary to put it through the same process as lard to prevent it turning rancid, *i.e.*, digesting with gum benzoin, for it is not likely that the fat of an immature animal should be of very stable composition. We have tried the following recipe, given at page 284, and can command it as a suggestive variation on the stereotyped formulæ one finds in receipt books. There are six or seven others, having the same basis, to be found near the end of the work:—

"*White Pomade.* Purified Veal Grease, 14 ounces; Spermaceti, 4 ounces; White Wax, 1 ounce; Almond Oil, 8 ounces. Melt over a water-bath, pour into a mortar, triturate well until a homogeneous paste is obtained, then add—Oil of Bitter Almonds, half a drachm; Oil of Geranium, 2½ drachms; Oil of Bergamot, 4 drachms; Tincture of Musk, a quarter of a drachm. Beat until perfectly incorporated."

Beurre de Cacao is a substance whose fine qualities are more appreciated in France than in this country. There seems no reason why it should not be used for pomade, and one or two formulæ in which it finds place appear in Professor Dussance's pages.

In conclusion, we cannot help feeling that the want which certainly existed of a handbook of perfumery for the use of chemists—a book of reliable formulæ and practical directions—is no less a want since the publication of this volume than it was before. In the present order of things, pomades, perfumes, and cosmetics are almost an essential portion of a chemist's stock, and they form the least objectionable of the many additions the pharmacist is compelled to make to the category of medicines proper, which, though nominally the staple of his business, would not of themselves, in a majority of cases, yield him a livelihood. It is not the sale of one article, or the avoidance of another, that is the test of honour or respectability in the practice of any vocation, and it is an unfortunate circumstance that so much that is objectionable has become associated with toilet adjuncts. The course of the chemist is clear in respect to all these things,—to avoid even the appearance of competition with those whose mendacious puffs he cannot hope to rival—to seek, even in his perfumery, a character for honesty in word and deed which will serve him in good stead when the faith of his clients may be exercised in other departments of his business concerning which they have less knowledge of their own to guide them.

ALMANACK AND TEXT-BOOK.

The Chemists' and Druggists' Almanack and Text-book.

As this book is published at our office, we cannot sound a loud note of praise, lest we be accused of blowing our own trumpet. Still, in justice to its editor, Mr. C. W. Quin, we must say that it greatly surpasses our expectations, although we have had many opportunities of examining the editor's excellent work. In his brief preface he notices the singular fact, that an important trade like that of the chemist and druggist should have remained so long without a special Almanack, and states that in his attempt to supply the want he has been greatly aided by the advice and assistance of numerous friends. The result of Mr. Quin's labour is a thoroughly practical annual, which ought to be on every pharmacist's desk. It exhibits all the essential features of an ordinary almanack, and affords full and precise information on numerous special subjects connected with the trade, the art, and the science of pharmacy. The Calendar is rendered particularly useful by the insertion of the dates for renewing licences and insurances, and numerous useful recipes and hints are given in the same pages. The Calendar is followed by a ruled diary with spare blank pages for private memoranda, and then comes a summary of the Regulations respecting Stamps, Taxes, Licences, and Patents. Under the head of Weights, Measures, and Arithmetical Formulæ, Mr. J. C. Brough gives a series of elaborate tables on an entirely new plan, specially adapted to facilitate reference and comparison. The equivalents of the weights and measures of various denominations are expressed in terms of the ordinary British and metric systems, and in the case of measures of capacity the different temperatures at which the standards are adjusted have been duly considered. The discordance between the standard temperatures of the metric and imperial systems has been disregarded by the compilers of the Pharmacopœia, whose tables are consequently misleading. Mr. Brough's approximate weights and measures and rules for converting the measures of one system to those of another will be found useful in the laboratory and at the dispensing counter. Mr. Joseph Ince contributes "A few practical Remarks on Dispensing and Kindred Subjects," in which we get a glimpse of a well-known writer in his everyday dress. Those who imagine that high literary and scientific attainments are incompatible with a proper appreciation of the practical details of a business will do well to read these suggestive remarks. An article on Photography, including a list of the chemicals used in the art, is contributed by the Editor, who brings to his subject the experience of a skilful photographer, and the knowledge of a professional scientific chemist. The remaining contents comprise, Directions for Restoring the Apparently Drowned; an admirable digest of the principal Acts of Parliament affecting Pharmacists; an article on Homœopathy, with a list of medicines; Veterinary Hints; Notes on Books, on Novelties and Pharmaceutic Specialties; Arrangements of Learned Societies, and a useful Trade Directory.

OUR LIBRARY TABLE.

Poison Orders. London: J. C. Chubb, 102, St. John-street.

THE object of Mr. Chubb's books of Poison Orders is to enable druggists to provide their customers with proper printed forms, by the use of which the latter may *send for* the poisons quoted in Schedule A. of the Pharmacy Act, without coming themselves. Each book contains 50 forms, and as they are sure to be useful occasionally, every druggist will do well to have one by him. A graceful way of informing a regular poison cutomer as to the requirements of the new Act is to present one of these books to him. They are sixpence each, and we believe can be obtained from all the wholesale houses.

Sale of Poisons Book. Christie's edition. Newcastle-on-Tyne.

WE should have gladly referred to this work in our general notice of Poison Books last month, had a copy reached us in time. As it is, we take the earliest opportunity of commending Mr. Christie's publication for the excellence of its printing and arrangement. The abstracts of several Acts of Parliament which are added to the work, especially that of the Pharmacy Act, are evidently written by some one with common sense, a gift of special service to those who undertake to unravel the knotty phraseology of such documents.

First Lines for Chemists and Druggists Preparing for Examination before the Board of the Pharmaceutical Society. By J. STEGGALL, M.D., etc. John Churchill and Sons. 3s. 6d.

This third edition of a well-known work may be profitably used by the younger members of the profession, in conjunction with the British Pharmacopœia. We regret, however, that the author has neglected the opportunity of giving a new direction to these first lines, so that they might lead directly to higher studies. The processes of the Pharmacopœia are explained in the language that is rapidly becoming obsolete, and yet Dr. Steggall expresses a hope that before many years have passed we shall find more uniformity in chemical language than exists at present. We cannot help thinking that the persistent use of the old nomenclature by certain writers delays the arrival of this good time coming.

GUYOT'S CONCENTRATED LIQUOR OF TAR.

MESSRS. SAVORY AND MOORE have lately introduced to the medical profession in England M. Guyot's elegant preparation of tar, which is now largely employed in the Paris hospitals. By adding two teaspoonfuls of this liquor to a quart of water, a clear tar-water can be instantaneously obtained. This diluted solution is used internally in the treatment of various diseases, and externally in fumigations, lotions, and injections. It is undoubtedly a better preparation than the tar-water made by simple infusion, and we trust that its therapeutic value will be tested by our physicians. The concentrated liquor is of a dark brown colour, but perfectly clear, and its smell and taste prove it to be a remarkably strong preparation of wood-tar.

AN IMPROVEMENT IN OIL CANS.

THE Patent Metallic Cisterns, manufactured at the Dartmouth Works, and advertised in our pages, are particularly serviceable to druggists who do a trade in oils, and who like to keep their cellars or storehouses clean, and to avoid the waste generally attendant on such stock. The smaller sizes too, we think, should be saleable to consumers. Corks or bungs are entirely avoided, and brass screw plugs are fitted on in their place. Perfect security is thus ensured either for storage or transit, and when in use a brass tap can be screwed into the lower part of the vessel. The cans seem to us very useful both for home and export trade. They are excellently made, and are not expensive. Wholesale and retail dealers in petroleum and other oils would do well to examine one of the handsome price lists, which may be obtained on application from the manufacturers.

GUFFROY'S COD-LIVER OIL DRAGÉES.

THESE are the invention of a Frenchman, and though not absolutely new, are we believe but little known to the trade in England. A sample box has been forwarded to us, and we have been much pleased with the elegant style in which they are prepared and put up. Each box contains a hundred sweetmeats, and each sweetmeat contains, it is said, beneath its sugar, the extractive matter of a tablespoonful of cod-liver oil. The therapeutics of this medicine are so doubtful, that it would be absurd for us to assert that M. Guffroy's preparation contains all the virtues of the unpleasant oil in this concentrated form. If they do (and many testimonials of their efficacy are published), they will certainly prove an acquisition to invalids. They have the recommendation of being peculiarly nasty when bitten, but of course biting is not essential to deglutition.

MARKING INK PENCILS.

THESE elegant little inventions are known to most of our readers, as we notice they are kept now in nearly every chemist's shop in the country. We doubt whether they will altogether supersede marking ink when the novelty has passed away, but there is no question about their popularity just now. We have received one of the Crystal Palace Pencils, made by the daughter of the late John Bond, which is got up very neatly, and answers its purpose excellently.

CHOCOLATINE.

Shakespeare was never a druggist, though it has been argued that he must have studied medicine, or he would have had more faith in nomenclature. We like the title of this new cocoa preparation exceedingly, as it is not only poetical and readily understood, but at once conveys a distinct and not untruthful impression to the mind. We like the article also, but as any one can obtain a sample gratis from the manufacturers, as they offer in their advertisement, we may well sink our individual tastes and leave it "chacun a son gout."

THE MONTH

NEWCASTLE CHEMICAL SOCIETY.

THE PRESIDENT'S INAUGURAL ADDRESS.

On Wednesday, the 23rd of December, the lecture-room of the Literary and Philosophical Society, Newcastle-on-Tyne, was filled with an audience of ladies and gentlemen connected with the Society, attracted by the announcement that Mr. Isaac Lothian Bell, F.C.S., would deliver the inaugural address of the newly-formed Chemical Society. Mr. Bell, on entering the room, accompanied by the committee, was received with loud applause.

Mr. **Bell**, in opening the proceedings, thanked the ladies and gentlemen present, on behalf of the members of the Society, for their presence on that occasion, and said they would accept it as an evidence of their good wishes for the Society's success and their interest in its future welfare. The address he had prepared was intended for the members of the Society, but it was thought desirable to give it publicly, in order to endeavour to interest the general public in the new institute; and, therefore, he had asked his friend Mr. Ladd to come down and illustrate the subject by some of his admirable experiments. Before proceeding further, he had to submit a matter or two of business to the members of the Society. Up to that time, they had numbered forty-one members, and he had now to read a list of thirty-seven, and to propose them as new members. Mr. Bell then read the list, and moved their admission formally, which was put and agreed to. He also read a list of the papers which had been arranged for, and announced that the committee, at their meeting that evening, had appointed the fourth Thursday in every month as the ordinary day of meeting for the Society. He concluded by stating that the post of treasurer having been accepted by Mr. John Pattinson, a vacancy on the committee was caused thereby. To this vacancy he proposed the election of Mr. Berkeley, of Jarrow. This was also put formally and agreed to.

Mr. Bell then delivered the address, from which we extract the following passages:—

INTRODUCTORY REMARKS.

Before I enter upon the proper duty of an address, by means of which it is intended to introduce your Society to public notice, in the hope of obtaining for it a due share of public recognition and support, permit me to tender my very grateful acknowledgments for the honour which the selection to serve as your first president necessarily confers. Surrounded as I am by gentlemen possessing high attainments in the science which it will be the object of this body to cultivate, I feel how entirely I am indebted to your kindness, in your being willing to accept as a sufficient qualification for the post the unequivocal interest I have invariably manifested in the application of chemistry to art. This claim, such as it is, I shall endeavour to supplement by an assiduous attention to the duties of my office, in the expectation that thereby, and with your assistance, I may be enabled to render substantial service to our progress and success.

THE CHEMICAL MANUFACTURES OF THE TYNE.

Gentlemen,—The banks of the Tyne are not without a certain degree of historical interest in connection with the development of chemistry applied on a large scale in various manufacturing operations of great importance and extent. More than seventy years ago, the late William Losh, in company with Lord Dundonald, commenced his labours to find a substitute for potashes, then exclusively employed whenever pure alkali was required in the arts. These pioneers in the manufacture of soda endeavoured in succession to accomplish their object by decomposing common salt by means of oxide of lead, by sulphate of iron, by carbonate of potash, and, finally, by the adoption of Leblanc's process of decomposing salt by sulphuric acid, and then subjecting the sulphate of soda to the joint action of coal and lime—the process, in fact, of the present day. Of still more ancient date, is the commencement of the production of prussiate of potash, which was introduced into this neighbourhood about the beginning of last century, soon after its discovery by Diesbach, in Berlin. Close on a hundred years ago, soap was established as one of the manufactures of our district, and for a still longer period have the coal mines afforded to the copperas makers the raw materials required in their process. Glass, although not usually regarded as a chemical product, is, in the eyes of a chemist, strictly one, and it is, therefore, worthy of note that its manufacture was begun on the banks of the Tyne so far back as 1615. But if the antiquity of the importation of chemical operations into this vicinity presents any features of interest, how greatly must that interest be magnified when we contemplate the expansion which has marked the career of our manufacturing chemists during the last five-and-twenty years. Immense establishments have sprung up to supply the ever-increasing demand of that alkali produced by Mr. Losh in hundredweights, while others have multiplied for obtaining bleaching powder, bicarbonate of soda, various combinations of lead, glass, earthenware, which, with our lead, copper, iron, and many other works, provide employment for thousands of men, and occupation for numerous practical chemists.

WORK FOR THE CHEMICAL SOCIETY.

Under these circumstances, and looking at the fact that we have among us professional chemists of great reputation, as well as many practical men who take a pleasure in study, it certainly is somewhat remarkable that it has been reserved for the present day to witness the inauguration of the first chemical society in the North of England. The absence of such an organisation is rendered still more conspicuous by the continual appeals made to chemistry itself, not only in our manufactories, but also in a vast number of commercial transactions, which, until recently, were conducted in a somewhat empirical mode. In lending my humble assistance to the furtherance of the objects of inquiry which it will be the aim of this association to promote, I do so in the belief that not only shall we be instrumental, by the opportunities our meetings and discussions will afford, of adding to each other's knowledge upon matters more directly connected with our various occupations, but we shall also have the means, by carefully observing phenomena passing daily before us, of adding something to that store of information which has rendered chemistry one of the most attractive and comprehensive sciences of the day. With the constant claims upon your attention, and with the anxieties inseparable from the superintendence of large works, it may appear that I am taking a somewhat sanguine view of the results which I anticipate may flow from the establishment of this Society, and that it is scarcely to be expected that we as manufacturers can add much, or anything, to a subject which is occupying the exclusive attention of so many illustrious chemists at the present time. To those who are disposed to take this view of our future, I would remark that the opportunities we possess of observation differ very materially, in some respects, from those usually within the reach of the chemical philosopher, whose operations are, for the most part, carried on for a comparatively brief space of time, and upon very minute quantities. You, on the other hand, have in addition to the means afforded by your laboratories, a field of inquiry and research within your power rarely or never at the command of the man of science. His short experiment is frequently substituted in your case by prolonged action, extending over weeks, it may be years, while the ounce of material under treatment may be extended to hundreds of tons. To him who feels an interest in observing nature, and in seeking to account for effects daily meeting the eye, occasions are continually presenting themselves of comparing agencies at work on a miniature scale with those which probably served to build up our strata, or with others which subsequently thrust up the sedimentary rocks into our loftiest mountain ranges. Currents of water leaving our manufactories, laden with flocculent matter, often give rise to substances resembling in character the aqueous deposited portions of the crust of our earth, while our flowing slags, charged with compressed air, spurt up from their tiny craters pigmy torrents of lava, which, on slowly cooling, afford many of the leading features of our crystalline rocks. At other times, you have the linings of our blast furnaces exposed to years of intense heat, imitating, in some measure, the columnar appearance of basaltic pillars, or the mechanical structure of some of our ores, produced by the gradual deposition of carbon from the volatile contents of our coke ovens. Cut through an old spoil heap, which has undergone slow combustion, and the chances are you will come on some cavity lined with crystals, sublimed from the chaotic mass, from which you may gather some information as to the probable cause of the occurrence of shining ore or sparkling gem in the crevices connected with the vast alembics of nature. Only two years ago, our townsman, Mr. Henry B. Brady, discovered in the insoluble matter left by treating limestone with hydrochloric acid at one of our chemical works, siliceous casts of the calcarous skeletons of have-a-dozen carboniferous limestone corals, and among them are species which, up to that time, had not been described. Thus, independently of the means we posses of studying the effect mass and time have in modifying and altering many of the results as they are obtained in the laboratory, it appears to me the connecting of our daily operations with such observations as those to which I have been alluding, would confer an interest upon much which would otherwise be dry and, perhaps, uninstructive routine. Davy defines the foundations of chemical philosophy to consist in observation, experiment, and analogy. By observation, facts are distinctly and minutely impressed on the mind. By analogy, similar facts are connected. By experiment, new facts are discovered; and in the progression of knowledge, observation, guided by analogy, leads to experiment, and analogy, confirmed by experiment, becomes scientific truth. Thus the very ground-work of the whole superstructive is observation; it must not, however, be overlooked that the power of noting a new fact is not a common one—it is a faculty, requiring for its development much and careful cultivation; hence, no opportunity ought to be lost of improving ourselves in the habit of observing, for, as Humboldt truly says, we must never forget that in the observation of a phenomenon, which at first sight appears to be wholly isolated, may be concealed the germ of an important discovery. Applying this language to circumstances within our own knowledge as practical chemists, have we not Nielson perceiving that the fire in a smith's hearth had its temperature raised by heating the blast in an iron tube previous to its arrival at the burning coal? And have we not our late townsman, Hugh Lee Pattinson, observing that lead in cooling solidified unequally? Yet these two simple facts embody two great philosophical truths, upon which have been founded two of the greatest improvements in metallurgical science of modern times, viz., the hot blast applied to our iron furnaces, and the Pattinson process of desilverising lead.

[After citing numerous instances of chemical discovery arising from the co-operation of manufacturers and scientific investigators, and quoting a passage from Humboldt's *Cosmos*, indicating the brilliant results of the alliance of industry with science, Mr. Bell alluded to the chemical researches that brought forth the beautiful aniline colours, and to other scientific labours by which the useful arts have been extended.]

THE CARBON-PRINTING PROCESS IN PHOTOGRAPHY.

While on the subject of applied chemistry, I may be allowed to refer to the now highly-cultivated art of photography, every step in which requires the aid of chemical action. This allusion enables me to call your attention to the very ingenious method of carbon-printing, brought to such a state of perfection by our townsman, Mr. J. W. Swan, as to have raised it to the ordinary position of a distinct branch of industry. In the ordinary practice of photography, a picture is taken, generally on glass, by exposing a salt of silver in a camera to the action of light. This negative impression is reversed by printing from it, by transmitted light, others on paper previously immersed in a solution of silver. The usual photographs, therefore, are films of a silver salt acted on by light, the clearness of which, however, is liable to be impaired by time and exposure—an objection entirely removed by receiving the picture from the glass negative on gelatine instead of on silver prepared paper. This elegant operation, as many of you, probably, are aware, depends on the fact that gelatine is rendered insoluble in water by the action of bichromate of potash when submitted to the influence of light. A mixture, then, of these two substances in the form of a thin film, on being exposed to the solar rays, has more or less of its thickness converted into an insoluble substance, according to the intensity of the light thrown upon it, leaving the remainder to be washed off it by suitable means. You have thus a film of gelatine varying in thickness in the ratio of the varying intensity of light transmitted to its surface through the negative picture on glass. By incorporating in the substance of the gelatine carbon, or other suitable pigment, you have an impression in which the depth of the shade increases with the thickness of the film. Processes such as this afford striking examples of the application of principles, without a knowledge of which no approximation to the results obtained could ever have been looked for.

CHANCE DISCOVERIES.

True it is, however, that instances are by no means wanting of considerable progress having been made in the arts in the absence of all chemical knowledge, or, indeed, of any attempt to generalise the experience gained in one branch of manufacture with that acquired in another. Progress under such circumstances was necessarily slow, where much would be left to chance, for what but chance could have induced our ironmasters of former days to add the infusible earth lime as a flux to their ores in the absence of all information on the properties of the double silicates? Again, we owe the introduction of the preparation of alum to an ancestor of my friend, Captain Chaloner, of Gisborough, imagining he traced some resemblance between the shale of the Cleveland Hills and the raw material used in the Roman States for making this salt. But for this accident, and we might have continued to import all our alum from Italy until chemistry had revealed it to be a sulphate of alumina, and that we possessed inexhaustible supplies of its constituent parts under our very feet.

SCIENCE A FRIEND IN NEED.

But it is when we are brought face to face with any real difficulty that we recognise the true value of science by the readiness with which she affords succour when appealed to for assistance. Sulphuric acid, distilled from green vitriol, was known to the alchemists of old, but it was long after their time before mankind learnt to produce the same substance by the combustion of sulphur and the use of nitrate of potash. In 1839, a political blunder in Naples doubled the price of sulphur in this country; but geology had taught us where to look for pyrites, and chemistry had shown it to be a sulphuret of iron capable of yielding sulphur by its own combustion. Hence, in the following year, we were independent of the caprice of the Bourbon king for the means of obtaining that acid, which to lose would fall not short of a national calamity. More recently, certain fiscal changes threatened embarrassment to our paper-makers in obtaining their raw material of rags. Our neighbour on the Wear, Mr. Thomas Routledge, knew something of the existence of a weed growing on the sandy coasts of Spain, and he was not ignorant of the power caustic soda possessed in removing the silica and resin abounding in this vegetable substance, and, to-day, after a few short years, I dare say there is not.

certainly there need not be, a newspaper printed in Newcastle which is not, so far as the paper is concerned, entirely procured from Esparto grass.

WASTE PRODUCTS UTILISED—STEARIC ACID AND GLYCERINE.

A considerable time might be devoted to an interesting enumeration of the various examples of the application to useful purposes of substances previously known, of others new to us, or of waste and consequently worthless products, for which we are chiefly, and, in many cases, entirely indebted to the labours of scientific men, who have made certain branches of study the object of special inquiry. Cheuvreul's experiments, as an instance, first made us acquainted with the nature of fatty matters. From him we learnt they were composed of an acid and a base, in short, chemically speaking, all fats or oils are salts, containing stearic acid and glycerine as the base. His investigations, followed up by practical men, with science helping them on their way, have enabled us to separate these two elements with facility, by simple distillation, in fact, at a very high temperature; and the tallow candle of our younger days is replaced by the elegant and economical one of stearine, while the glycerine is applied to a great variety of uses, including that of the manufacture of that highly explosive substance nitroglycerine.

[Among the triumphs of modern chemistry, Mr. Bell noticed the discoveries made within the last ten years by the aid of spectrum analysis—a method of discriminating different kinds of matter, which may be said to have extended the sphere of chemical research to the confines of space. By the instrumentality of spectrum analysis, several new terrestrial elements have been revealed, the presence of certain metals in the sun's atmosphere has been demonstrated, and the constitution of the most distant stars and nebulæ has been brought within the limits of probable theory. Mr. Bell's review of the spectrum researches was an important feature of his address, but its length compels us to omit the main part of it, and merely quote two or three incidental passages.]

SILVER IN SEA-WATER.

I know of no plan, nor am I aware of any facts known to chemists, which would have led them to suspect the presence of silver in sea-water; yet there now seems no doubt that copper, after being exposed for a long time on the bottoms of ships, indicates the existence of silver where none was to be found before, a circumstance which can only be accounted for by supposing that there is in the waters of the ocean an infinitesimal quantity of this metal, which goes on accumulating upon the sheathing of vessels until its quantity reaches a point susceptible of being detected. It is obvious, however, that the circumstances are rare where the existence of a substance can be made perceptible to our senses in the manner just described in the case of silver in sea-water.

CRYSTALLISATION FROM SUPERSATURATED SOLUTIONS.

I believe, when a spectrum is produced by a flame from an ordinary lamp, the sodium lines are never absent, and this circumstance has been accounted for by the supposed constant presence of soda, in some or other of its combinations, in our atmosphere. This idea has been confirmed by some highly instructive experiments of M. Desiré Gernez. You will remember that at a temperature of 91° F. water dissolves about half its own weight of anhydrous sulphate of soda, whereas at 60° F. it requires six of water to dissolve one of this salt: in other words, that 100 parts of water 91°, saturated with sulphate of soda, will deposit, on cooling to 60°, just about one-third of its weight of this substance reckoned in its anhydrous condition. Instead, however, of this sulphate following the ordinary rule of solutions, *i.e.*, of depositing in the form of crystals the difference of the quantity capable of being dissolved at one temperature and another, you are aware, by excluding the air, a solution of sulphate of soda, made at the maximum point of solubility, viz. 91°, may be cooled down to 60°, and lower, without crystallising. On the admission of air, however, generally speaking, instantaneous crystallisation takes place. This was ascribed by Gay Lussac to the concussion of the air upon the surface of the liquid. At the same time, that distinguished chemist was perfectly acquainted with the fact that a little oil or even a sheet of paper interposed between the solution and the atmosphere invariably, in spite of the influence of concussion, prevented crystallisation. In 1815, Ziz discovered that any substance, however small, such as a needle, previously exposed to the atmosphere, always induced the change; but that, if this needle had been previously wetted or heated, crystallisation did not ensue on contact being made between it and the solution. Now, M. Gernez has proved, by the experiments I have referred to, that the crystallisation under the circumstances described is due to the fact that floating in the air, even far from the sea and from large towns, there is constantly present in very minute quantities sulphate of soda. Admit it to the supersaturated solution, and crystallisation ensues; exclude it, and no crystallisation takes place. These researches in themselves are so interesting that I cannot resist quoting one or two. Suppose a quantity of the supersaturated solution to be contained in a glass globe with a moderately long neck, air is admitted, and crystallisation commences from a point immediately below the opening—that is, in the centre of the liquid, as if something falling down the orifice had induced the change. In proof of the correctness of this theory may be adduced the circumstance that, if the glass vessel be kept inclined so that nothing can fall down its neck, no crystallisation occurs; and, again, if the neck be so bent as to expose its open end upright, by which arrangement anything falling into the orifice will be retained at the bend, there is no crystallisation; but raise the vessel up, so that any substance caught at the bend may fall into the liquid, and you have immediate crystallisation. M. Gernez subsequently, by the continued aspiration of a large quantity of air through water, actually succeeded in obtaining crystals of sulphate of soda. I have dwelt at greater length upon these investigations of this French chemist than I otherwise should have done, because it may lead to some practical results of importance. Gernez observed that when the air which was admitted into contact with the solution was made to pass through cotton, the particles of atmospheric sulphate were filtered, as it were, from it, and no crystallisation ensued; but that this cotton, now holding in its substance the imprisoned salt, caused the solidification, when brought in contact with the solution.

FERMENTATION AND PUTREFACTION—GERMS OF DISEASE.

Now, in 1858, something like the same conclusion was come to by Schrœder, in respect to fermentation and putrefaction. His experiments, if I remember correctly, established the fact that if the air necessary to induce either of these changes was filtered in like manner through cotton, no alteration was produced, but that the cotton itself took up from the air certain miasms, which rendered it capable of producing either the one or the other on being immersed in the substance in which it was desired to excite fermentation. The question is whether air, laden with those principles which are supposed to provoke cholera, fevers, and so forth, might not be treated in a similar manner, and, by examining the nature of the deposit, some mode of treatment, founded on philosophical induction, be devised for averting those terrible calamities, the causes of which are now hidden in so much mystery.

GRAHAM'S RECENT RESEARCHES—FIRE DAMP.

Only very recently, the present Master of the Mint, Mr. Graham, has given to the world a series of highly interesting investigations, on what he terms the absorption and dialytic separation of gases by colloid septa. His experiments have been followed by others, by H. St. Claire Deville, who has discovered the surprising facility with which gaseous substances are transmitted through the homogeneous substance of iron or platinum at a red heat; and Mr. Graham himself has ascertained that the comparatively dense metal palladium is capable of absorbing, at about 212° F., 643 times its own volume of hydrogen gas. My object in alluding to these facts is to have an opportunity of quoting the application of endosmosis as a means of detecting fire damp in our mines. In an ingenious form of apparatus, devised by Mr. Ansell, an assistant of Mr. Graham, the passage of a portion of the carb. hydrogen through a diaphragm of earthenware or marble alters the level of a portion of mercury, and thus, by completing a galvanic circuit, warns the miner of his danger by ringing a bell.

OZONE—ELECTRICAL PHENOMENA.

The important offices oxygen performs in the economy of nature, as well as in your own workshops, invests all its properties with no ordinary interest. Its capability of having its chemical agency intensified, by being made to assume the form of ozone, necessarily, therefore, commands our attention. Whether this property can ever be rendered available in the arts must depend on the facility with which the change can be effected. Mr. Ladd has brought with him a piece of ingeniously-devised apparatus for the conversion of the oxygen of the air into ozone, which will afford, to those interested in the question, an opportunity of witnessing the operation. This mysterious condition of oxygen courts and, no doubt, will reward further inquiry, as, indeed, do many other questions now engaging, for the first time, the research of scientific men. Among them, I would name the beautiful phenomena attending the passage of the electric fluid through partial vacuum, at present one of those germs alluded to by a philosopher already quoted, as, possibly, concealing some great discovery, it may be, of not less importance than the electric telegraph developed by means of an observation made twenty years previously, that a magnetic needle was deflected at right angles by the passage of an electric current over it. For the further extension of this sublime application of philosophical truth to the wants of mankind, so that not even the depth of the ocean can interfere with the communication of thought between nations, we are indebted to the present Mayor of Gateshead, Mr. Newall, who first, and with his own hands, insulated the conducting copper by means of gutta percha, protected the whole by his wire rope, and thus produced the submarine cable.

CHEMICAL PROBLEMS AWAITING SOLUTION.

Entering once again within the walls of your manufactories, allow me to remind you, as men entrusted with the discharge of duties so eloquently eulogised by the great Humboldt, that there are awaiting solution some questions of, I may say, national importance. You are invited to rid our iron of impurities seriously impairing its properties, one, at least, of which, having a great value taken separately, is worse than useless when combined with iron. You have our iron slags, rich in metal, but nearly worthless, from the accumulation of phosphorus, so much sought for elsewhere, which they contain. All the sulphur consumed in your alkali works, after serving its purpose of decomposing your common salt, is ungratefully expelled from your premises, and permitted to accumulate in vast heaps to the annoyance of its neighbours.

[The next subject considered by Mr. Bell was the use of coal in mechanical and chemical processes. He showed that much still remained to be done in the improvement of furnaces; and he stigmatised the waste of fuel in the production of the smoke, which mars the beauty of the landscape, defaces our buildings, and annoys every one exposed to it, as a disgrace to the intelligence of the age. He touched upon the hopes entertained of being able to reach and work coal at a considerable distance from our shores by sinking shafts in the open sea; and he referred the probable extended use of compressed air in mining operations to afford mechanical power, and also to cool the works on its escape.]

CONCLUDING REMARKS.

I must now leave the future of our newly-formed Society in the hands of its members, upon whose assiduity in acquiring and imparting knowledge its success must entirely depend. I would remind them that in philosophical research in other departments they are surrounded by men of no ordinary stamp, who, although, in most instances, like ourselves, have the cares of business demanding their attention, but have, nevertheless, made honourably known the name of Newcastle in the annals of science. Let it be our aim to take a worthy position by their side, and let us hope that with them we may be able to achieve the beautiful with the good, according to the prayer of the Spartans of old.

The delivery of the address was frequently interrupted by applause, and Mr. Bell was rewarded with enthusiastic cheering on resuming his seat. Mr. Ladd then, by means of his beautiful apparatus and the electric light, exhibited the spectra of various metals, such as silver, copper, zinc, and the new metal thallium—which was discovered by means of the spectroscope. He also projected on the screen photographic images of the spectra of different stars, and exhibited his ozone generator in action. These wonderful and beautiful experiments called forth repeated plaudits from the audience.

Mr. GLOVER then proposed a vote of thanks to Mr. Bell for his able and exhaustive lecture. In past times they had a Hutton, and a Bewick; and in later times, a Hugh Lee Pattinson, famous for his discoveries in the chemistry of manufactures as applied to lead and the silvering process. They now had Mr. Bell, and as long as they had a gentleman among them capable of delivering an address such as they had heard that evening, they might rest assured that Newcastle would still retain her place in the world of science. He asked them to support his proposition by acclamation. (The invitation was responded to with great enthusiasm.)

Mr. BELL responded, and said he could only once more express his feelings of gratitude for the compliment they had paid him, and the kind manner in which his friend Mr. Glover had associated his unworthy name with the names of those scientific worthies who had preceded him in the good old town of Newcastle. He could assure them that any services of his to the new Chemical Society should be most cheerfully rendered.

This concluded the proceedings, but a large party remained to inspect the specimens on the table, illustrative of the lecture, and the portfolio of photographs of the works of ancient masters, executed by means of Mr. Swan's carbon process.

MANCHESTER CHEMISTS' AND DRUGGISTS' ASSOCIATION.

THE second monthly meeting was held at 15, Dickenson Street, on Friday, January 8th, Mr. J. T. SLUGG, F.R.A.S., in the chair.—The attendance was large, and Mr. Siebold's admirable paper on "Fermentations" was listened to throughout with the greatest attention. At its conclusion an unanimous vote of thanks to the author was passed. Attention was then drawn by the chairman to the Programme of Lectures which had been issued to the members, and it was urged that such a cheap and efficient means of gaining scientific knowledge should be largely appreciated. The treasurer also hoped that the lecturers would be gratified by seeing a well-filled room on the opening evening. The secretary referred to a course of lectures on Pharmaceutical Chemistry, which had been given in Manchester, in 1843, and, though these were only twelve in number, and the fee considerably higher than that now demanded, and, though it was a quarter of a century ago, forty-four students attended the course. He thought much larger classes might now be reasonably expected. It was announced that the next monthly meeting would be held on February 5th, when Mr. Hampson would read a paper on "The Question of Remunerative and Uniform Prices."

The programme referred to is appended:—

Lecture arrangements for the present Session.

CHEMISTRY.

A course of twenty lectures on Chemistry, with special reference to Pharmacy, will be given at Owens College, Manchester, on Wednesday evenings, at six p.m., commencing January 13th, 1869, when Professor Roscoe, B.A., F.R.S., Ph.D., &c., will deliver the Introductory Lecture. The course will be continued by C. Schorlemmer, Esq., F.C.S. Fee, 7s. 6d. It is hoped that principals, as well as assistants and apprentices, will take tickets for this course, and be present at Professor Roscoe's lecture.

Non-members will be admitted to this course only at 10s. 6d.

MATERIA MEDICA.

A course of twelve lectures will be delivered at Union Chambers, 15, Dickinson Street, Manchester, on Monday evenings, at 7·30 p.m., by A. Somers, Esq., (Lecturer on Materia Medica, at the Manchester Royal School of Medicine), commencing January 11th, 1869. Fee, 6s.

LATIN.

Classes will be held at Union Chambers, 15, Dickinson Street, Manchester, on Monday evenings, at six p.m., by J. Smith, Esq., B.A., commencing January 11th, 1869. Fee for the Course of twenty lessons, 5s.

The course of lectures on Botany has been postponed till the Summer, sufficient names not having been sent in to justify its immediate commencement.

The room at 15, Dickinson Street, will be kept open on Monday evenings, after the conclusion of Mr. Somers's lecture, till ten p.m., for the use of members and associates for reading and social intercourse.

The next monthly meeting of the Association will be held at 15, Dickinson Street, on the second Friday in January, at three p.m., the first Friday being New Year's day. Gentlemen willing to contribute papers or objects of interest, for these meetings, are requested to communicate with the Secretary at their earliest convenience.

Tickets for admission to the lectures and classes are now ready, and can be obtained of

F. Baden Benger, Hon. Sec.

1, Market Place, Manchester.

MEETING OF CHEMISTS AND DRUGGISTS IN NEWCASTLE.

On Monday evening last, a large and influential meeting of the chemists and druggists of Newcastle and the surrounding towns, was held in the Lecture Theatre of the Newcastle College of Medicine, Neville Hall—Mr. J. W. Swan in the chair—"to consider the best means of providing facilities for the acquisition of the technical education rendered imperative by the passing of the new Pharmacy Act."

The **Chairman**, in opening the proceedings, drew attention to the important influence the Act would ultimately have, in improving the educational qualifications, and, consequently, the social standing of those who were entrusted with the responsible duties of chemists and druggists, and pointed out the desirability of making some special provision for bringing up the appentices of the present day to the required standard of knowledge, and of meeting the even greater requirements of the future.

Mr. B. S. **Proctor**, local secretary of the Pharmaceutical Society, then moved "That the members of the drug trade here assembled feel it incumbent upon them to promote, as far as possible, a systematic course of technical education among the rising race of chemists and druggists." He remarked that the new Pharmacy Act, which, like all other Acts of an enlightened legislature, was designed purely for the public good, would also have a beneficial action upon the dispensers of medicine as a class; and urged that it was the duty of the present chemists to pay for any advantage that would accrue to them by doing their utmost to supply the public with a better qualified race of tradesmen as their successors.

The resolution, having been seconded by Mr. **Brockett**, local secretary of the United Society of Chemists and Druggists, was carried unanimously.

Mr. H. B. **Brady** moved the second resolution, "That a committee of four or five be appointed to confer with the Council of the Newcastle College of Medicine; and, if practicable, to agree with them for such a modification of their arrangements as will meet the wants of pharmaceutical students." He said that though they had no official communication from the College, they had reason to know that the Council would not be unwilling to receive a deputation such as that indicated in the resolution; and he strongly recommended this application, as being incomparably the best movement the meeting could take.

The resolution having been seconded and briefly supported by Mr. W. **Owen**, a general discussion followed, in which various matters of detail were considered, the principal speakers being Messrs. **Noble**, **Mays**, and **Hudson**, of Shields; Mr. **Marecco**, of the College of Medicine; Messrs. **Fairs** and **Proctor**, and the mover and seconder of the resolution, which was ultimately passed unanimously.

It was then moved by Mr. **Beadle**, seconded by Mr. **Story**, and carried unanimously, "that this meeting requests the following gentlemen to act as its committee:—Mr. Fairs, Mr. Mann, Mr. Brady, Mr. Swan, Mr. Proctor, and Mr. Forth."

A vote of thanks to the Chairman for his services, and to the Council of the College for the use of their room, concluded the proceedings.

HALIFAX CHEMISTS AND DRUGGISTS' ASSOCIATION.

The Chemists and Druggists of Halifax and neighbourhood dined together at the Brown Cow Hotel, Gibbet-lane, Halifax, on December 10, 1868, having met for the purpose of forming an association, and also to consider some features of the New Pharmacy Bill. After dinner they adjourned to dessert in an adjoining room, when, on the motion of Mr. Jessop, seconded by Mr. Brook, Mr. **Dyer** was elected chairman. The usual loyal toasts having been proposed and duly responded to,

Mr. **Farr**, in an eloquent address, dilated on the many advantages which would ensue from the formation of an association, from the promotion of a fraternal feeling in the trade, from the discussion of whatever regulations Parliament might think fit to make, and from periodical meetings for the consideration of trade interests. In conclusion he moved the following resolution, which was seconded by Mr. Shaw, and carried unanimously,—"That it is desirable to form an association to be called the Halifax and District Chemists' and Druggists' Association." A number of rules, proposed by Mr. Jessop, and seconded by Mr. Pollard, were then agreed to. Mr. J. Brearley then proposed the following gentlemen as officers for the ensuing year:—

President.—Mr. **Dyer.**

Vice-Presidents.—Mr. **Renshaw**, Mr. **Brooke**, Mr. **Stott**, Sowerby Bridge.

Secretary.—Mr. **Hebden.**

Treasurer.—Mr. **Pollard.**

Committee.—Messrs. **Farr**, **Shaw**, **Jessop**, and **Brierley.**

The resolution having been seconded by Mr. Charles Brierley, was carried unanimously.

The Chairman then invited discussion on the New Pharmacy Bill, which was warmly entered into, the members generally congratulating each other on the arrival of a new epoch in the history of the trade, from which it would take a higher position, as the undoubted capability of every new member would in future be insured. The chief point of discussion, however, was the labelling of the milder preparations of opium, "poison." The alarm and trouble that such labelling would cause in the case of paregoric, syrups of poppies, cough lozenges, or infant's preservative, was generally deprecated. Many of the members desired to know whether the regulations respecting labelling applied to medicines prescribed, and as there was difference of opinion on this point, Mr. Shaw, the local Pharmaceutical secretary, was requested to write to Bloomsbury-square for information, and lay the same before the next general meeting of the members.

The Secretary then briefly proposed success to the Association, a toast which was enthusiastically drunk.

Mr. J. B. Brierley having proposed a vote of thanks to the chair, which was heartily agreed to, the meeting broke up in excellent humour. It was admitted to be the best meeting of the trade ever held in Halifax, both with regard to numbers and to cordiality.

THE SANDFORD TESTIMONIAL FUND.

NEW LIST OF CONTRIBUTIONS.

	£	s.	d.
Amount published in the December No. of the Chemist and Druggist	351	9	0
Anness, S. R., Ipswich ..	0	5	0
Atherton, J. H., Nottingham	0	10	6
Alcock, J. F., North Walsham	0	10	0
Andrews, F., Bayswater ..	0	5	0
Buchanan, Jas., Edinburgh	1	1	0
Brown, Thomson, Glasgow	0	5	0
Bennett, R., Tunbridge Wells	0	5	0
Baldwin, G., Greenwich-rd.	0	5	0
Barber, J., Red Lion-sq. ..	0	5	0
Bardsley, H. Ryecroft ..	0	2	6
Barrt, F. J., Newark.. ..	0	2	6
Barry, J and E., Northampton	1	1	0
Bass, W. T., Enfield	1	1	0
Bayley, John L., London..	1	1	0
Bayley. J. T., Brownhills..	0	3	0
Bayley, E., Walworth-road	0	10	6
Bell, W., Yarmouth	0	2	6
Bell, Mr., Bradford	0	10	6
Bingley, Mr., Northampton	0	10	6
Black, Jas., Leven	0	2	6
Blackburn, Mr, Bradford.	1	1	0
Blanchfort-T.C, Yarmouth	0	5	0
Bowring, J. D., Cardiff ..	0	10	6
Boyce, Alfred	0	2	6
Brew, T. A., Brighton ..	1	1	0
Brooks, C., Wandsworth-road	0	5	0

	£	s.	d.
Brown and Smart, Aldgate	0	10	6
Browne, W., Walworth-rd,	0	2	6
Batler, E. D., London	0	5	0
Bradley, E. S., Ashbourne	0	10	0
Bowerbank & Son, Cockermouth	1	1	0
Baxter, George, Worksop	0	10	6
Bond, L. V., Tiverton	0	5	0
Carr, H., Tunbridge Wells.	0	10	0
Chapman, H., Ipswich	0	5	0
Cornell & Cornell, Ipswich	0	10	6
Chater & Son, Watford	0	10	0
Cannon, C., Islington	1	1	0
Chase, Thomas, Holborn	0	10	6
Cleaver, E., 63, Oxford st.	1	1	0
Cock, John, Falmouth	0	5	0
Coleman, E. J., Cardiff	0	5	0
Collings, J., Littlehampton	0	2	6
Crapper, J. S., Hanley	0	5	0
Cross, W., Cardiff	0	5	0
Cunningham and Sparrow, Pimlico	2	0	0
Coles, Mr., King's College-road, N.W.	0	10	6
Duncan, Flockhart, and Co, Edinburgh	2	2	0
Dadford, W., Northampton	0	5	0
Davis, D. F., Leominster	0	10	6
Dickinson, J. Great College-street	0	10	6
Drane, P., Cardiff	0	5	0
Dyer, A. J., West Brixton.	0	5	0
Edisbury, John, Liverpool.	0	5	0
Edwards, J. J., London	0	5	0
Eedes, J. W., Marsden	0	3	0
Ekin, C. H., Bath	0	10	0
Ellis, T. W., Loddon	0	5	0
Effland, Mr., 197, Waterloo-road	0	5	0
Fisher and Sons, Ramsgate	1	1	0
Fells, John, Clapham	0	2	6
Fenteman, G. E., Smithfield	0	5	0
Foster, E., Preston	0	2	6
Freeman, R., Kennington Park-road	0	5	0
Freeman, R. T., Lewisham	0	5	0
Freeland, John, Barrhead.	0	5	0
Foulkes, W. A., Rhyl	0	5	0
Freeman, T. W., Ledbury.	0	2	6
Foster, M., Cullompton	0	10	0
Gardner and Ainslie, Edinburgh	1	1	0
Guthrie, P., Glasgow	0	5	0
Greig, W, Glasgow	0	5	0
Greenall, Alf., Everton	0	2	6
Gardner, Chas., Tunbridge Wells	0	10	6
Gower, Alf., Tonbridge	0	10	6
Godfrey, F., Newton Abbot	0	2	6
Gale, H., 3, Millbrook-pl., N W.	0	10	6
Gankley, W. B, Arnold	0	2	6
Gan[illegible]t and Fuller, Union-street, Borough	0	10	6
Gedge, W. S., Clerkenwell	0	10	6
Gill, G. W, Walworth-road	0	2	5
Glanville, F., Brompton	0	5	0
Greaves, E. S., Cardiff	0	5	0
Green, R., Greenock	0	10	0
Griffin, H. S., Burton-on-the-Water	0	5	0
Grindall, Mr, Hull	0	2	6
Gristock, T., South-street.	0	5	0
Gunner, J., Lambeth Walk	0	5	0
Gwatkin, J. T., Brighton	0	10	0
Garl, W., Bampton	0	3	0
Hall, H. R., Hull	0	5	0
Havill and Son, Tiverton	0	5	0
Haydo[illegible], H, Tiverton	0	2	6
Hatrick, R, Glasgow	0	5	0
Har[illegible], H., Glasgow	0	5	0
Howard, R., Tunbridge Wells	0	10	6
Harris, Geo., Crickhowell.	0	5	0
Harnly, T., Leeds	0	5	0
Halley, Richard	0	5	0
Hall[illegible]way, J., Carlisle	0	5	0
Hands J, Campden	0	10	0
Harrison, J. P., Carlisle	0	5	0
Harrison and Parkinson, Bradford	1	1	0
Heeley, J., Kennington-road	0	5	0
Hicks, J., Bradford	0	10	6
Hickey, E L, London	0	5	0
Hill, W. T., Cardiff	0	2	6
Hillridge, George, Preston	0	5	0
Hodgson, G., Greenwich	0	5	0
Houghton, W., Preston	0	5	0
Howard, Geo., Greenwich.	0	10	0
Howell, M., London	0	10	6
Hughes, H. D	0	5	0
Hunter, Jas., Dewsbury	0	5	0
Hyslop, J. C., Edgware-rd.	0	5	0
Jones, Humphrey, Llangollen	0	5	0
Jaap, J., Glasgow	0	5	0
Jackson & Co., Westwood	0	5	0
Jackson, James, Heywood	0	2	6
James, J P., Cardiff	0	10	6
Johnson, B., Tottenham Court road	0	12	0
Jones, F., Flint	0	5	0
Jones, James, Salford	0	5	0
Jones, W., Shepherd's-bush	0	5	0
Joy, F. W., Cardiff	0	10	6
Kinninmont, A., Glasgow	1	1	0
Kennedy, W., Glasgow	0	5	0
Keen, J., Southwark-street	9	2	6
Kemerstone, F., Hoxton	0	2	6
King, Mr. (late of Hodgkinson, Luckombe, & King)	2	2	0
Lawrence, John, Glasgow	0	5	0
Lyon, R., Ipswich	0	5	0
Lane, J. W., Southwark-st.	0	2	6
Leguera, H. L., Aldgate	0	10	6
Miller and Co., Tunbridge-wells	0	10	6
Millidge, T. E., Tonbridge	0	5	0
Maddock and Arrow	0	10	6
Marchant, C., Ipswich	0	5	0
McCarthey, C. J., Cardiff	0	5	0
McCreery, J., Kennington-park	0	5	0
Macpherson, A., Stornoway	0	4	0
Mayger, Mr., Northampton	0	10	6
Merrick, Mr., Northampton	0	5	0
Middleton, J., Middlesboro'	0	5	0
Miller, H., Battersea	0	2	6
Moore, J., Pembroke-dock.	0	5	0
Morgan, T. G., Petworth	0	5	0
Morris, T., Southwark-st.	0	2	6
Moss, W., Carlisle	0	5	0
Moseley, W., Redditch	0	5	0
Mumbray, H. G., Manchester	0	5	0
Nicholson, A., Tunbridge-wells	0	10	6
Newey, J. T., 17, Bloomsbury-square	0	5	0
Nicks, J., Billericay	0	5	0
Nicks, J., jun, Billericay	0	5	0
Noakes, R., Brighton	0	10	0
Norrish, H., Tiverton	0	5	0
Orpe, T. M., Old Kent-road	0	10	6
Owers, R. C., Southwark-st.	0	2	6
Owles and Son, Yarmouth	0	10	6
Pickering, B., Brompton	0	10	6
Panes, Geo., Southboro'	0	5	0
Ponsford, J, Newton Abbot	0	5	0
Parry and Garnham, London-bridge	0	10	6
Passmore, J., London	0	5	0
Pearce, Josh., Crewkerne	0	10	0
Philips, W., New Cross-rd	0	5	0
Pitts, R. C., Norwich	0	10	0
Poll, W. S., Yarmouth	0	2	6
Preston, A P., Blackman-st	0	2	6
Price, J., Southwark-street	0	1	0
Pullen, W., Northampton	0	5	0
Quibell, T. O., Newark	0	5	0
Quiller, C. B, Sloane square	0	10	6
Robertson & Co., Edinburgh	1	1	0
Raimes, Blanshards & Co., Edinburgh	1	1	0
Rose, W, Glasgow	0	2	6
Radley, W. M. V., Sheffield	1	1	0
Ramsbottom, Geo., Waterford	0	5	0
Rawling, J, Hackney-road	0	5	0
Rayner, L, Poplar	0	5	0
Richards, H., Southwark-st.	0	2	6
Richards, W. R., Camberwell-road	0	10	6
Robinson, J., Middlesboro'	0	2	6
Robinson, J. C., N Shields	0	5	0
Roderick, Thos, Pontypool	0	5	0
Rogerson and Son, Bradford	1	1	0
Rouse, F. J., Clapham	0	5	0
Rowe, C. R., Middlesboro'	0	2	6
Rossiter, J., Tiverton	0	2	6
Sells, R, Tunbridge-wells	0	10	6
Sutton, Fras, Norwich	0	10	6
Smith, Mr., Ipswich	0	2	6
Savidge, J. M., Nottingham	0	5	0
S[illegible]yer, J., Carlisle	0	5	0
Sealey, W., Southwark-st.	0	2	6
Shipman, Mr., Northampton	0	5	0
Silvers, Mr, Yarmouth	0	2	6
Simpkins J., Minchinhampton	0	5	0
Smith, T. and H., London and Edinburgh	2	2	0
Smith, S., Middlesboro'	0	5	0
Speechley, G., Bishop Stortford	0	5	0
Speller, J., Southwark-st.	0	2	6
Stagg, J. H, Yarmouth	0	2	6
Stansfield, R, Haverstock-hill	0	5	0
Stevens, P. A., Hoxton	0	10	6
Stewart, C. S, Cardiff	0	10	0
Sughs, W. G., Cardiff	0	5	0
Sutcliffe, J, Clapham	0	2	6
Silvester, J., Knutsford	0	10	0
Smart, John, Scarborough	0	5	0
Sowerby, John, Carlisle	0	5	0
Smith and Sons, Norwich	1	1	0
Staning, W., Hull	0	5	0
Sanders, G L., Tiverton	0	5	0
Shaw, E. P., Wakefield	1	1	0
Tait, W., Edinburgh	1	1	0
Taylor, W. J., Middlesboro'	0	5	0
Gaylor, W. R., do.	0	2	6
Taylor, H. H., do.	0	2	6
Thetford, H, Ilminster	0	10	0
Thomas, R and J., Bournemouth	1	1	0
Thomas, Sam., Stanstephen	0	2	6
Thomas, A., Carlisle	0	5	0
Todd, L., Preston	0	5	0
Turner, John, Aylesbury	0	10	6
Twinberrow, John, Worcester	0	5	6
Utley, Mr, Liverpool	0	5	0
Williamson, Jas., Scarboro'	0	5	0
Wilmer, L. M, Tonbridge	0	5	6
Walsh, J, E., Tunbridge-wells	0	10	6
Williams, John, 5, New Cavendish-street	2	2	0
Wright, G. H, 7, Poultry	1	1	0
Whittaker, W., Runcorn	0	5	0
Wiggin, J., Ipswich	0	5	0
Whiteman, T., do.	0	5	0
Walker, Mr, Bradford	0	10	6
Walker, W., Preston	0	2	0
Warren, J, Blackman-st.	0	5	0
Wastie, F., Kennington-cross	0	5	0
Waterton, W., Wandsworth road	0	2	6
Welchman, Mr, Northampton	0	5	0
Wiggins, H.	0	7	6
Wilkinson, Bridge, and Co., Regent-circus	0	5	0
Williams, R, Brixton	0	5	0
Williams, T., Cardiff	0	10	6
Willsher, S. H., Tenterden	0	5	0
Wilson, R., Clay-cross	0	5	0
Wilson, S, per H. Bardsley	0	2	6
Williamson, W., Hanley	0	5	0
Wilson, J. F., Essex-road	0	5	0
Wright, G F., Gloucester-pl.	0	2	6
Wright J., Yarmouth	0	1	0
Wood, Wm, Pontypool	0	2	6
Wood, H., Tiverton	0	2	6
Young, Richard, Preston	0	2	6
Young, W	0	5	0

MICHAEL CARTEIGHE, 172, New Bond-street, London, W.
JOHN MACKAY, 119, George-st., Edinburgh.
HY. MATTHEWS, 60, Gower-st., London, W.C.
Hon. Secs.

N.B.—Donations may be made payable at the chief office, to the Treasurer, Mr. B. B. Orridge, or to Elias Bremridge, 17, Bloomsbury-square, London, W.C.

The hon. secs. request those members of the committee and local secretaries who have not yet sent their lists to London, to be kind enough to forward them at once.

BANKRUPTCY.

IN RE HENRY BARONS MANN.

THIS bankrupt, a commercial traveller, lately representing the firm of Messrs. J. H. Day and Son, veterinary chemists, of London and Stafford, applied to J. B. Barry, Esq., judge of the Oxford County Court, on the 18th ult., to be released from custody and to pass the court in formâ pauperis. Mr. F. B. Thompson supported the bankrupt, and Mr. Walsh opposed him on behalf of the detaining creditors, Messrs. Day, Son, and Hewitt. Mr. Walsh stated that when a person was in custody for debts exceeding £800 as in this case, the Registrar could not release him until he had been in prison two months, and the indebtedness must exceed £300 to enable him to make the present application. The prisoner had been arrested at Banbury on a *ca. sa.* in October last, for £149 17s. 2d., at the suit of his clients, who would prefer the case to be removed to London. In reply to Mr. Walsh, bankrupt stated that he had travelled for a respectable house doing a large business. He went to them in 1865. He was not now in a position to pay the court fees, which amounted to £20. His employers were to pay him partly by commission, and the remainder on the sales, about 6s. 8d. in the £ on the receipts. Bankrupt could not estimate his income, but was indebted £200 to the firm in October. He had two actions with the detaining creditors, and they had him taken in execution for costs. Sometimes his expenses exceeded £10 per day. His Honour said that he had now only to be satisfied that the bankrupt had not the means of paying the fees, and granted the application and discharge.

IN RE F. W. PONTON, STOWBRIDGE.

A first meeting in this matter was held on the 4th inst. before Mr. Registrar Hill, at Birmingham. Mr. Hodgson appeared for creditors, and on his nomination Mr. W. B. Thompson, of Church-street, Liverpool, chemist and druggist, was appointed assignee.

GAZETTE.

BANKRUPTS.

BLACKBURN, H. C., Whetstone, Middlesex, chemist.
DAY, L., Torquay, soda-water manufacturer.
DEXTER, JOHN, late of Llandudno, chemist.
HEATH, JOSEPH, Plumstead, chemist.
JOHNSON, G. T. F., St. Leonard's-on-Sea, chemist.
LEWIS, REBECCA, Ebbw Vale, Monmouthshire, chemist.
WINTER, RICHARD, Appleby, chemist.

PARTNERSHIPS DISSOLVED.

Anthony and **Anthony**, Bedford, chemists.
Corbet and **Pearce**, Kingswinford, Staffordshire, surgeons.
Fardon and **Hatch**, Bristol, chemists
Gregory and **Carter**, Stroud, surgeons.
Kent and **Bloyes**, New Sleaford, wholesale druggists and seed merchants.
Lloyd and **Lloyd**, Finsbury Circus, general practitioners.
Ward and **Oldman**, Huntingdon, surgeons.
Wilson and **Rayner**, Great Malvern, physicians.

SCOTCH SEQUESTRATIONS.

Gummock, J. W., Saltcoats, Ayrshire, licentiate apothecary.
Munro, Andrew, junr., Inverkeithing, oil merchant.
Smith, J., Dundee, veterinary surgeon.

Trade Memoranda.

MESSRS. **Geo. Curling & Co.**, export druggists, whose business has for many years been carried on at 16, Cullum-street, have lately removed to very handsome and extensive premises which they have erected expressly for the drug business in St. Mary Axe. Their new building is in all respects a model of what a wholesale drug warehouse should be, and their laboratory is furnished with every modern appliance. Their export business having of late years so consideraby increased as to render this step necessary, we understand that they have commenced the new year by the entire abandonment of their trade with chemists and druggists in London, and will therefore for the future devote their whole attention to the management of their foreign transactions, and their energies to the further development of these. We may therefore with confidence commend this firm both to our foreign readers and to British merchants receiving indents from abroad, as Messrs. Curling's experience and practical acquaintance with the requirements of the export business are now united with greater facilities for the execution of orders. Mr. Burch (well known to many of our readers) is still associated with this firm, which we hope to see highly prosperous.

The Standard Wine Measure Company have recently removed to much more commodious premises than they have hitherto occupied in Crutched Friars. They have taken one of the large and handsome warehouses recently erected in Bury-street, St. Mary Axe, and now carry on the whole of their business under one roof, which they could not do before. Their stock of wines is kept in good condition in some large cellars, and the upper floors are conveniently divided into offices, sample rooms, despatch department, packing floor, and a receiving floor for returns. With these increased facilities for trading, it is superfluous to express the wish that the additional business will follow, as we have noticed that this is the invariable result of judicious enterprise.

The following druggists have been appointed agents by the Litre Wine Bottle Company for the sale of their wines:—Messrs. Flint, Eastbourne; Lunn, Grantham; R. Drury, Lincoln; J. Buckly, Moseley; Pye, Reading; Hammerton, Colchester; Owles, Bungay; Witt, Liverpool; Hollingworth, Mansfield; J. J. Leigh, Bishops Auckland; J. H. Green, Frome; Greensmith, Rugeley: Mitchell, St. Austell; A. Heath, Congleton; J. Greaves, Matlock, Bath; Brice and Pearce, Cheddar.

Mr. R. **Drury** has succeeded to the retail business hitherto carried on by Mr. Page Woodcock, at Lincoln.

Mr. Wm. **Follows** has bought the business of Mr. Coleman, Duddeston Mill-road, Birmingham.

NOTES AND QUERIES

New Petroleum Act.—A number of correspondents have asked for information on special clauses of the New Petroleum Act. On another page will be found an abstract of this act, which will, we believe, answer all their enquiries.

Register of Chemists and Druggists.—In reply to "*A Subscriber*" and several others, we may state that it will not be possible for us to publish the register of chemists and druggists in these pages. We are informed by the Registrar that it will not be ready before March, and that the price is not yet fixed.

Hair Wash, *S.S.P.*—We find the following form, with Erasmus Wilson's name appended, in Cooley's *Cyclopædia of Receipts*:—Eau de Cologne, 8 fl. oz.; tincture of cantharides, 1 fl. oz.; oils of rosemary and lavender, of each, 4 fl. dr.

Transparent Pomade.—Required a good formula for this preparation.

Almanack and Text Book.—The great pressure of business among the binders towards the end of the year caused a few days unlooked-for delay in the publication of our Almanack and Text Book. On the 21st of December we inserted the following advertisement in the *Times* newspaper, which we now reproduce, as our excuse to those who may not have noticed the original:—

> APOLOGY.—The Publisher of the CHEMISTS' and DRUGGISTS' ALMANACK regretting the unavoidable delay which has taken place in its publication, takes this means of apologising to subscribers for the same, and informs them that the work will be ready on the 24th inst.—44a, Cannon-street, London, E.C.

Varia.

HOW POPULAR SCIENCE IS WRITTEN.

In a letter on "Poisonous Dyes," recently sent to the *Times*, commenting on the highly explosive nature of the dye which was supposed to be used, Mr. Crookes wrote—"It is almost as explosive as nitroglycerine, and has already destroyed one factory, with loss of several lives. Should the dye retain this character in the fabric, the wearers of these socks would be able to vary the excitement they are now indulging in in a highly sensational manner." This harmless little jokeling, perpetrated two months ago, has this week been disinterred by the editor of a contemporary which occasionally dabbles in popular science, and now appears in the following shape:—"Mr. Crookes has recently asserted that woollen stockings dyed with picrate of potash are liable to explode on the feet of those who sit too near the fire."—*Chemical News.*

QUACKS AND QUACKERIES.

It may be expected from what I have already said that I shall forthwith proceed to call in question the consort of the people with quacks; or pass an anathema on quacks and quackery individually and collectively. From this I abstain. Consort of the community with quacks is so obviously the result of ignorance. that if the most moderate share of attention were given to the subject, if a tithe of the attention I have prayed on behalf of the profession itself were given to the subject, communion with quacks and their foolish arts would naturally cease. As to the quacks, to notice them were to elevate them. Belonging strictly to the worst of the criminal classes, they are moved by no sentiments which the most acute criticism could touch. A professed gambler may have sense of honour, a professed pickpocket may have skill, a professed burglar may have courage; the professed quack has the sins of them all, the saving qualities of none. He is, because he is permitted, a forced necessity of morbid minds. One thing only would I note in his history as most wonderful: viz., that the grand disseminators of human knowledge, the grand teachers of moral truths, the proprietors of the fourth estate allow him unblushingly to deface their fair pages with his falsehood, his snares, his open loathsome sin. Day by day the press, in daring faultless language and sentiment, exposes vice and purifies the thought of the world; day by day, in the greater number of its organs, it sells itself to the advertisement of immoralities worse than the worst it endeavours to remove.—*Dr. Richardson.*

PYRETHRUM ROSEUM AS AN INSECTICIDE.

In a work published in 1866, a German traveller bears testimony to the value of this insect-killing plant. He says that a tincture, prepared by macerating one part of *Pyrethrum roseum* in four parts of diluted alcohol, and then thinned with ten parts of water, and applied to the skin, gave perfect security against attacks of mosquitoes and other insects, enabling him to pass the night in an open boat on the rivers of Siam without any annoyance; and moistening the beard and hands with the same liquid would protect the hunter for at least twelve hours from the flies On the Island of Luzon, a board six inches wide was fastened horizontally all round his house, and a track of the powder, several inches in width, laid along this board, proved an insurmountable barrier to the incursions of the myriads of ants infesting the country.

LIQUOR STRYCHNIÆ.

Mr. Deans writes to the *Lancet* :—I wish to call attention to what I consider a grave defect in the liquor strychniæ of the British Pharmacopœia. I find that in cold weather, when the thermometer is below 45 or 40 degs., the strychnia is deposited in crystals at the bottom of the bottle, which crystals are again dissolved at a higher temperature. I think this is due to the small proportion of acid, or to the acid being hydrochloric, as when the solution is effected by means of sulphuric acid I have not noticed that any deposition takes place.

What is the reason, too, of the red discoloration and muddy deposit which occur in the syrupus ferri phosphatis when it has been made for any length of time? Does it in any way interfere with its therapeutic action?

OLD-FASHIONED MEDICAL PRACTICE.

The time has been when, in medicine universally, there was the same science as that which the still extant Lama physician, with his iron stick, lealhern bag, tea-kettle, garner of vegetables, paper pills, and demoniacal horse, so proudly possesses. In simple inquiry for remedies, possessing each a specific virtue in charms or spells, our ancient fathers of now civilised medicite spent their days. Slowly they gave up the direct superstitions, so slowly that as late as the reign of the second Charles, there were some who conceived the royal touch a cure for scrofula, and when that mad monarch went about his bad business into the unknown, there were some who, with strong dash of superstition hanging to them, must needs cram dead bones, finely powdered, down the royal œsophagus into the royal stomach itself. But in time the direct superstitions died out, the actual remedies were left to work alone, and physicians of eminence became great in particular remedies for particular diseases. Old Dr. Radcliffe's book of receipts, what a tenacious hold it had! and pharmacopœias sent out from head quarters, what wonderful forms they supplied! Philosophic oil of bricks, imagine that for the name of a remedy! and broth made of vipers, think of that for a food of curative character! These things are swept away, and the principle of trying to discover remedies by empirical observation is on the wane. The whole field of medicine is indeed so changed, that if a physician well informed in all modern advancements could possibly meet even such true men of the last century as Richard Mead, or John Arbuthnott, I doubt if there could be any common understanding between them, either in respect to the nature of symptoms, cause of disease or question of treatment,—*Dr. Richardson.*

PATENT SANITARY CLOSET.

A patent sanitary closet has been invented by Mr. Thomas Beggs. It presents some important improvements which make it specially useful in hospitals, private houses, and confined situations. The lid is air-tight, and when closed a continuous current of air passes through the pan and a box of charcoal. All noxious emanations are thus deodorised, and carried off, there being no possibility of escape into the apartment in which the seat is placed. This current of air is cut off, when the lid is raised, by a self-acting valve, so as to obviate a draught. The syphon arrangements of the plan are extremely simple, and the supply of water is provided by a supplementary cistern to prevent unnecessary waste.—*Lancet.*

TRADE REPORT.

UNDER the belief that a Trade Journal ought, as one of its leading features, to provide the most trustworthy and useful Commercial Intelligence, it will be remembered that a few months ago we added eight pages a month to our literary matter, so that we might be able more fully to develop this department. It is with much pleasure that we now announce that Mr. W. Caudery, of 6, Billiter-square, whose high position as one of the leading chemical brokers in the City of London gives a special weight to his remarks, has promised to furnish us with the latest information as to the state of the chemical market up to the middle of each month. We wish to call the special attention of our readers to this, and to our Trade Intelligence generally, as we are confident that by carefully digesting the information which is there given, they ought to make the sevenpence-halfpenny per month which they pay for the "CHEMIST AND DRUGGIST," the best investment which they make even in their business of brilliant percentages.

1868.

A CAREFUL comparison of the prices quoted for drugs in any Price Current—take our own for example—from year to year, would, we are inclined to believe, indicate a gradual increase in the average value of these, which although not very perceptible in the course of a single year, would have a sensible effect in ten or twenty years' time, in reducing a druggist's profits, unless a proportionate increase of price were not charged to the retailer. This is almost a necessary result of the fact that the laws of supply and demand, so powerful in effecting variations in the values of almost all other articles of commerce, cannot, to any great extent, be applied to the produce of physic. It is evident that, while human labour is becoming dearer every year, and that for obvious reasons a larger supply of medicine is not likely to induce a larger consumption, higher prices may, with confidence, be anticipated to be the average rule. These considerations are equally applicable to the wholesale as the retail trade, but with regard to the latter, nothing can show more clearly the impolicy of "cutting the prices" than due attention to such a point as this. The most remarkable eccentricity of the drug market has been the rapid and unprecedented rise in the price of opium. We cannot think that the present rates will be fully maintained for long, but there is no reason to expect any early return to the former prices. Bergamot still maintains its price, while nearly all other essential oils have become slightly easier during the year. The last crop of olive oil was a very good one, and prices are consequently much lower than at the commencement of last year. An enormous increase has taken place in the demand for petroleum, especially abroad, Russia and North Germany having become large consumers. The supply, though greatly augmented, has not been sufficient to keep the price at the low quotations of last January, and an addition of nearly fourpence per gallon is the result.

We have not space for the whole of Mr. Caudery's exhaustive review of the chemical trade of the past year, but the following will be found interesting :—

A more discouraging year for manufacturers may almost be looked for in vain, nearly every article baffling all calculation by dropping gradually from one stage of depression to another; but a sound and healthy demand has continued throughout, and we may reasonably look to the new year to recompense for the misfortunes of the old, although the market closes without animation.

Not immediately may we expect a return to activity and prosperity. Two years and a half have already failed to restore commercial and general confidence; but, with low prices for the chief articles of food and clothing, and an absence of stocks both abroad and at home, it can scarcely be too much to look for a gradual recovery from the shock of 1866 in the year just commenced.

ALKALI, OR SODA ASH.—Sales of No. 2 were made at 2d. in January, 2 1-16d. February and March, 2⅛d April; from which it gradually declined each succeeding month to 1⅞d., landed in September, at which it remains with a dull market. No. 1 realized the usual difference of ¼d. per cent. more. The absence of American, as well as reduced Continental orders, together with re-sales of monthly contracts entered into in 1867, have caused this depression, and manufacturers in consequence are not disposed to accord therewith, but prefer rather to wait, and take the chances of the market. The present prospects are not cheering.

Caustic Soda.—The manufacture has again considerably increased, but without causing much retrogression in price. In January it was dull at 15s. 6d. to 16s. per cwt., but gradually declined to 14s 6d.—present vale of best white 60 to 62 per cent. The use of this article has become more general and extensive.

Crystals Soda.—Although the low price of £4 10s., ex ship, was quoted during 1867, in December, 1868, it declined to £4. The opening price was £4 12s. 6d.; in February it receded to £4 7s. 6d.; in March again advancing to £4 15s.; while in April, May, and June each month it declined 2s. 6d. per ton, remaining during the latter month and July at £4 7s. 6d.; in August it reached £4 12s. 6d. in consequence of a large stock held here in second hands having been cleared off; but in September it again fell to £4 7s. 6d., October £4 5s., November £4 2s. 6d., December £4—recovering at the latter end of the month to present quotation of £4 5s., but manufacturers will not contract for forward delivery, anticipating more favourable prices.

Bicarbonate of Soda was 13s. in January, 12s. 9d. February, 13s. March, 13s. 6d. April; from this it gradually declined monthly to 11s. in November—the present very low quotation. Absence of the usual American demand has been the principal cause of this depression.

Bleaching Powder throughout the year realized low prices; opening at 10s. to 10s. 6d., it advanced in February, March, and April to 13s. 3d; but in May declined to 12s. 9d., June to September 11s., October to December 10s. 9d.—present price 11s. On the whole, there has been a good average demand.

Tartaric Acid fluctuated to the extent of 2½d. per lb.; January sales were made at 1s. 1½d., February and March at 1d. less, which it recovered in April, and in May and June a further 1½d. per lb., making the value 1s. 3d.; in July it commenced to decline, ½d. in that month, same in August, and 1d. in September; October and November it revovered ¼d., and in December business was done at 1s. 2d., at which it remains, with a prospect of higher prices, as the old stocks are disposed of, and an advance required on the other side for brown Tartars.

Citric Acid opened at 1s. 11½d., but in February and March receded to 1s. 10d., recovering in April to 1s. 11½d., and in May advanced to 2s. 6d., in consequence of scarcity, and high price required for Lemon Juice; June it fluctuated from 2s. 9d. to 2s. 6d., July and August 2s. 7d., gradually declining from September to November to 2s. 5d.; but during the last month again advanced to 2s. 9d.—present quotations; stock being small.

Oxalic Acid and Sal Acetos were extremely depressed throughout, the nominal quotations being 8d. and 10d. per lb., with discounts varying from 5 to 12½ per cent.; the result of which must be most unprofitable to manufacturers, to a want of confidence and unity among whom it may be attributed.

Potash.—Bichromate remained at 5d. per lb. during the whole of the past year, the only difierence being in the discount, which varied from 5 to 12½ per cent. Chlorate realized January to March 11½d. per lb., April 1s., May to July 1s. 1½d., August and September 1s. 1d., October 1s. 0½d., December 1s. Prussiate was somewhat neglected, January to March 1s. 0¼d., April to June 1s., July to December 11¾d., the present price for best English. Muriates were quoted 8s. 6d. per cwt. January to May, and June to December 8s. 3d. The demand for most of these articles has been limited.

Iodine improved in value in January and February from the opening price of 9d. to 9½d., March to June it was 9¼d., and from July it remained firm at 9¾d., the present quotation; but transactions were confined to actual wants.

Quicksilver during the whole year remained at £6 17s. per bottle, with a good demand.

Sulphate Quinine opened at 4s. 1d. to 4s. for Pelletiers, at which it remained till May, when it advanced to 4s. 3d., June and July 4s. 4d., August declined to 4s 2d., recovering again in September to 4s. 3d., October 4s. 4d., November and December 4s. 6d., present quotation, the stock being in few hands.

Refined Camphor masntained good prices; January to March being 1s. 10d., April 1s. 9½d., July to October 1s. 9d., November 1s. 11d., December 1s. 10d.

Cream Tartar.—Notwithstanding the low prices of 1867, those of 1868 do not show any improvement, and importers in many cases have not realized cost; 80s. was quoted in January and February 79s., March and April; from thence it improved to 83s. in May, 85s. June, up to 87s. 6d. July, thence declining to 88s. 6d. in August, 83s. 6d. September, 82s. October, recovering again to 83s. November, and 85s. December, present price; with a prospective advance at the turn of the year.

Sulphate Copper.—With a fair average trade, prices were depressed (the market for the rough article ruling low.) In January it was 24s. 9d. to 24s. 6d.; February sales were made at 24s., at which it remained till July, 6d. less being accepted in August; from September to December 24s., closing at 25s. The rough market having advanced, we may look for higher prices.

Refined Borax.—On the last day of 1867 the price was reduced from 65s. to 56s., and during the early part of January, 1868, to 50s., being a fall of 15s. per cwt. in about a fortnight, at which it remained till May; in the two following months it advanced to and was firm at 55s., August and September 60s., October 65s., November and December 65s. to 67s.; with a limited supply.

Ammonia.—Sulphate experienced a good demand throughout the year, opening at 14s. 6d. to 15s., remaining thereat up to June; in July and August 15s. 6d., September 16s., October 16s. 6d.; November and December 16s. 9d., at which it closes. It was very scarce during the last six months. Carbonate remained stationary at 5d. from January to September, with a dull sale, the difference being in the discount, which varied from 5 to 10 per cent.; from October to present time 5¾d., with 5 per cent. discount, the article being scarce, and likely to be dearer, in consequence of advance in materials.

Sal Ammoniac, in sympathy with the foregoing article, was neglected during the first nine months, having been almost stationary at from 34s. firsts, 33s. seconds; in July it was sold at 33s. and 32s. respectively, in October advanced to 35s. and 34s., November 36s. and 35s., December 38s and 36s.—the present prices, makers having agreed among themselves to maintain these fixed quotations.

Alum throughout the year was in good request, more especially during the first six months, and the official prices fixed about three years since were unaltered.

Sugar Lead was scarce, and readily disposed of at 37s. to 37s. 6d. for best white, 32s. grey, and 27s. brown, during the eleven months January to November; but advanced in December to 40s. for best white, there being no stocks, and an increased inquiry.

Arsenic maintained uniform prices throughout, viz., 16s. lump, and 7s. 3d. powdered, with a languid demand.

Green Copperas.—Extensive shipping orders were executed for this article during the whole year at steady prices, ranging from 50s. to 60s. per ton, according to quality.

Monthly Report.

The drug market has been somewhat more active last month, but prices have not materially altered, except in a few instances. Opium has again advanced to an extraordinary price. Fine Turkey having sold at 49s.; 47 cases of inferior to best bought in at 20s. to 52s. 6d. It is anticipated that these prices will be maintained for some time to come, as a considerable mistake respecting the stock must have been made somewhere.

Castor Oil is steady at 5½d. to 6d. for rather dark straw to seconds; fine Pale Italian fetching 7¾d.; Cod Liver Oil at 5s. 9d.; Essential oils are firm. Rhubarb is somewhat easier, very good 6s. 6d.; Good Middling 3s. 9d.; Ordinary 2s. 3d.; Quinine has advanced 3d; French 4s. 9d. Of 78 cases Citronelle one-half sold steadily at 2¾d. to 2⅞d., 10 cases Winter's bought in at 3¾d., of 13 cases Lemongrass 5 cases sold at 4½d. to 5d., 10 cases Winter's ditto bought in at 5½d.

5 cases Peppermint bought in at 14s, 10 cases Hale and Parshall's 20s., 11 cases Excelsior 18s. 6d., 5 cases Michigan 13s., and 12 cases Hotchkiss' HG at 20s. and LB at 19s. 6d., 10 packages Cajaputa bought in at 3s. 9d. to 4s. 9d. per bottle, 4 cases expresssed Mace 2d., 7 cases Nutmeg sold, fine pale 7d. to 7¼d., one lot Paste, 2d., 3 cases Sassafras

bought in at 5s., 2 cases Cinnamon bitter at 2s. 8d., and 10 cases Aniseed at 10s.

125 Bales of Honduras Sarsaparilla chiefly sold at 1s. 4½d. to 1s. 5½d., 39 Bales Jamaica made 1s. 10d. to 2s. 1d., Scammony 10s. to 28s., Spermaceti 30 boxes bought in at 1s. 4d., 14 barrels Bees Wax sold at £9 2s. 6d., African £8 to £8 10s., Camphor remains quiet; Nux Vomica 12s. 6d. to 13s., Jalap sold at 2s. 9d. to 3s. 2d., Balsam Capivi sold at 1s. 9½d., 6 cases Balsam Tolu good 2s. 3d.

Aloes.—Of 92 packages East India 62 packages sold, good hard Socotrine £12. 7s. 6d. to £12 10s., good fair rather soft £8 5s. to £8 10s., very ordinary dark 50s., fine hard Hepatic £9 15s., good £8 10s., middling £5, ordinary £4 to £4 10s., very ordinary 40s. to 45s., low 11s. 100 cases Cape sold, good to fine 29s. 6d. to 30s. 6d., coarse and soft to fair 16s. to 28s., one lot Hepatic sort rather gritty 46s. Of 106 gourds and 8 boxes Barbados only a small part sold, capy to good middling 80s. to 90s.

Roots.—10 bales Alkanet bought in at 26s. to 27s. 6d., of 520 bales Galangal 52 bales sold, good 18s. to 19s., wormy 13s. to 14s. 37 bales Liquorice, Bombay sold at 16s. 6d., the first lot 11s., small 10s.; 100 bundles and 22 bales Spanish bought in at 10s. to 25s. 7 bales Pink bought in at 7d. 6 bales Snake sold at 1s. 3d. 20 bales Rhatania sold, good fair 7d. 5 casks Orris bought in, middling 28s.

Senna.—27 bales Bombay bought in, fair partly broken and stalky at 4d., mixed with dark 3d. Of 47 bales Tinnevelly 22 bales sold, ordinary 1¾d. to 2d., low middling to good middling 3¼d. to 6d. Of 33 packages Alexandria 9 packages sold, good rather stalky 1s., stalky and very stalky 6d. to 9½d., 4 cases fine picked 2s. 10d. to 3s., sea damaged 3s. 3d., and 2 casks pods at 8d.

Seeds.—10 bags Madras Coriander sold at 18s., and 54 packages Croton, dull to fair mixed with dark at 85s. to 91s. 19 Bales Cummin bought in at 50s. 50 bags Fenugreek bought in at 20s. Of 40 bags Aniseed 15 bags sold at 36s. to 38s., and 6 bags from Montreal at 25s.

Ess. Lemon bought in at 5s. 3d. to 8s.; Ess. Bergamot 15s. to 18s.

Camomiles bought in at 60s.; Gamboge declined about £3, at £16 to £18; very dark to pale Jamaica Honey sold at 25s. to 40s.; Gum Guiacum good 1s. 5d.; middling 9d. to 1s.; Gum Sandarac 10 casks sold at 90s. 6d.; Gum Mynt fine £12 10s. to £13 15s.; Gum Arabic 28s. They maintain former rates.

Dyes.—Indigo very firm. A steady demand for Cochineal; 3s. 1d. to 4s. 3d. for black, 2s. 11d. to 3s. for silver. Fine Orange Shellac bought in at 105s. Liver sold at 79s. 6d. Galls mixed £4 5s., good blue £5 5s. Fustic £6. Cutch steady. Sumach 9s. Jamaica Logwood £5 15s.

Oils.—Palm steady at £39 10s. to £40. The price of Olive Oils is again reduced, as our special advices from Messina, published last month in the Chemist and Druggist, led us to anticipate. Petroleum firm, at 1s. 6½d. to 1s. 7½d. No change in Linseed or Rape. Small sales of Cocoanut Oil at £53 10s. per tun. 80 tuns of Newfoundland Cod Oil sold at £39. The low prices of Turpentine have led to a greater demand; 2,500 barrels sold at 26s. 6d. to 29s. 6d., showing an advance of 3s., market closing firm with sellers at 30s. per cwt. Pot and Pearlashes 31s. per cwt.

Spices maintain their previous rates, but no active demand. Tapioca has been in request, at about ¼d. under previous quotations. One lot of very fine Penang sold at 3½d. Arrowroot same prices as last month.

CHEMICALS.—Acids: Tartaric is dearer; English held at 1s. 2½d., and foreign at 1s. 2d. Citric dearer, 2s. 10d. per lb. being wanted. Sales of Oxalic at 8d. per lb. Soda Ash has been in somewhat more request, at 1¾d. to 2d. per degree. Caustic Soda dearer; white 60 per cent. firm at 13s. 6d., and 70 per cent. 17s. 6d. per cwt. Soda Crystals offering at £4 7s. 6d. per ton. Sales of Bicarbonate of 10s. 6d. per cwt. Saltcake quiet at £3 per ton. Phosphate selling at 33s. 6d. per cwt. Refined Borax held at 67s. 6d. per cwt. Potash: Prussiate dull. Yellow 11¼d., and red 1s. 10d. to 1s. 11d. per lb. Bichrome quiet, at 5d. less 10 per cent. Chlorate held at 12d. to 12½d. per lb. Muriate inquired for at £8 10s. per ton for 80 per cent. Refined Saltpetre had advanced to 30s. per cwt. Alum at £7 6s. to £7 7s. 6d. for lump, £7 15s. for powdered, and £8 15s. per ton for ground. Sal Ammoniac selling at 38s. for first, and 36s. per cwt. for second quality. Sales of Sulphate at 16s. 3d. per cwt. Carbonate 5¾d. per lb. Sulphur firm, roll £10 10s., and flour £12 10s. to £13 per ton. Bleaching Powder dull at 10s. 6d. per cwt. Acetate held at £12 10s. to £13 per ton brown, £22 per ton for distilled. Magnesia: Carbonate 42s. 6d. per cwt., Calcined 1s. 6d. per lb. Arsenic held at £7 to £7 10s. per ton for powdered. Phosphorus: Wedges 1s. 8½d., and Sticks 1s 9½d. per lb. Copperas selling at 52s. 6d. per ton. Copper: Sulphate advanced to 24s. 6d. per cwt., and in request. Verdigris 1s. per lb. Lead: Sugar neglected; White 40s., and Brown 28s. per cwt. Nitrate 32s. per cwt.

Monthly Statement

Of the Stocks, Landings, and Deliveries of the following Goods at the Port of London, from Jan. 1 to Dec. 31, 1868 and 1867.

		Stock Nov. 30.		Landings.		Deliveries	
		1868	1867.	1868.	1867.	1868.	1867.
Aloes	cases	2802	3170	3087	4109	3505	4347
	kegs	78	112	—	68	34	138
	gourds	978	1753	1083	2716	1858	1965
Aniseed, Star	chests	466	334	451	136	319	379
Arrowroot	casks	13088	12736	10143	11739	9766	8457
	boxes and tins	18644	19108	13245	13497	13729	18728
Balsam	casks, &c.	526	249	1087	736	810	856
Bark, Medicinal,	casks and cases	232	306	159	330	232	299
	serons, &c.	6487	7765	17698	10137	19976	14799
Bark, Tanners	tons	100	74	706	382	681	491
Borax	packages	133	91	162	727	120	745
Bees & veget. wax	bales & serons	474	250	684	377	457	204
	casks and cases	793	1387	1968	4859	2580	4970
	cakes	1143	1415	3861	3877	4295	4012
Brimstone	tons	—	143	—	—	—	—
Camphor	packages	3321	1805	5477	3204	3961	3606
Cardamoms	chests	87	90	479	339	482	512
Cochineal—							
Honduras	serons	27 9	3415	24422	28375	4018	5245
Mexican	,,	284	700	2312	1157	2113	649
Teneriffe	,,	7001	5095	11697	19283	17507	18450
Coculus Indicus	bags, &c.	1576	993	1367	952	781	763
Colombo root	packages	184[illegible]	2332	240	1866	732	1156
Cream of Tartar	casks	18	265	195	537	339	749
Cubebs	bags	2185	1282	1398	272	395	734
Dragonsblood	chests	166	27	222	117	153	130
Galls, E. I.	casks and cases	4854	1958	10128	6590	7232	7083
Mediterranean	sacks	15	70	31	60	86	64
Gum—							
Ammoniac	packages	203	187	60	46	44	81
Animi and Copal	,,	1891	1250	5517	2563	5085	4952
Arabic, Barbary	,,	60	160	598	525	698	682
Turkey	,,	81	62	60	323	63	549
East India	,,	2156	1626	6297	4293	5367	4206
Assafœtida	,,	71	95	270	149	294	254
Benjamin	,,	1239	876	1642	1721	1279	1663
Dammar	,,	1273	1120	830	860	677	701
Galbanum	,,	2	—	6	3	11	3
Gamboge	,,	144	73	409	182	338	192
Guaiacum	,,	75	84	171	223	180	197
Kino	,,	202	99	291	80	187	18
Kowrie	tons	931	1578	1672	2427	2058	2122
Mastic	packages	183	233	6	163	56	146
Myrrh, E. I.	,,	48	34	253	89	222	114
Olibanum	,,	1735	1200	4087	4644	3552	5525
Sandarac	,,	260	139	1019	936	898	940
Senegal	tons	78	70	69	77	61	54
Tragacanth	packages	22	38	26	33	42	14
Ipecacuanha	casks and bags	74	123	433	431	486	444
Jalap	bales	246	254	451	229	455	232
Lac-Dye	chests	3502	3585	5507	4338	5590	5810
Nux Vomica	packages	5454	348	9956	2337	4848	2839
Oil—							
Castor	casks	108	83	115	32	90	52
	cases	1352	427	3091	2106	2076	2336
	dppers and tins	11065	4630	54432	28845	47995	31031
Palm	tuns	1532	666	7303	5719	6423	6290
Cocoanut	,,	3458	3237	10324	7293	10238	10470
Olive	casks, &c.	715	1676	3896	5777	4856	3911
Aniseed	cans	158	97	429	150	379	371
Cassia	,,	754	371	372	194	245	316
Opium	chests, &c.	210	311	—	—	no	retrn
Rhubarb	chests..	1769	519	3472	1424	2310	2086
Safflower—							
Bengal	bales	1803	1684	3304	3441	3186	4005
Bombay	,,	182	96	308	2	222	107
Saffron	packages	10	10	7	—	6	—
Sarsaparilla	bales	381	336	1714	1895	1669	2507
Senna	bales, &c.	2366	2242	3064	3121	2940	2655
Shellac	chests, &c.	10078	12102	15672	12643	17720	16942
Sticklac	,,	3629	2804	3252	1314	2427	3597
Terra Japonica—							
Gambier	tons	3242	1481	10626	8284	8865	8180
Cutch	,,	1495	410	3336	1493	2265	1802
Turmeric	,,	879	804	1304	1531	1179	1158
Vermilion	chests, &c.	114	81	140	158	107	167

Monthly Price Current.

[The prices quoted in the following list are those actually obtained in Mincing-lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.]

	1869. Jan.					1868. Jan.				
CHEMICALS.										
ACIDS—	s.	d.	to	s.	d.	s.	d.	to	s.	d.
Acetic ....per lb.	0	4	..	0	0	0	4	..	0	0
Arsenious (*see* Arsenic)										
Citric ....per lb.	2	9	..	2	10	2	0	..	0	0
Nitric .... ,,	0	5	..	0	5½	0	5	..	0	5½
Oxalic .... ,,	0	8	..	0	8	0	8½	..	0	8¾
Sulphuric ...... ,,	0	0¾	..	0	1	0	0¼	..	0	1
Tartaric crystal .. ,,	1	2¼	..	1	2½	1	1½	..	1	2
powdered ,,	1	2½	..	0	0	1	2	..	0	0
ANTIMONY ore......per ton	280	0	..	300	0	260	0	..	0	0
crude ..per cwt	22	0	..	24	0	19	0	..	20	0
regulus.. ,,	49	0	..	50	0	45	0	..	0	0
star .... ,,	48	0	..	0	0	45	0	..	0	0
ARSENIC, lump...... ,,	16	0	..	16	6	16	0	..	16	6
powder.... ,,	7	6	..	8	0	7	3	..	7	6
BRIMSTONE, rough ..per ton	132	6	..	132	6	132	6	..	135	0
roll ....per cwt	12	0	..	0	0	10	3	..	11	0
flour.... ,,	14	0	..	14	6	14	0	..	14	6
IODINE, dry ....per oz.	0	9¾	..	0	10	0	9¼	..	0	9½
IVORY BLACK, dry..per cwt.	0	0	..	0	0	0	0	..	0	0
MAGNESIA, calcined..per lb.	1	6	..	1	8	1	6	..	1	8
MERCURY..... .. per bottle	137	0	..	0	0	137	6	..	0	0
MINIUM, red ......per cwt.	20	9	..	21	0	21	6	..	22	0
orange .... ,,	31	9	..	32	6	33	6	..	0	0
PRECIPITATE, red ....per lb.	2	6	..	0	0	2	6	..	0	0
white .. ,,	2	5	..	0	0	2	5	..	0	0
PRUSSIAN BLUE ...... ,,	1	0	..	1	10	1	0	..	1	10
SALTS—										
Alum ....per ton	150	0	..	155	0	150	0	..	155	0
powder .... ,,	170	0	..	175	0	170	0	..	175	0
Ammonia:										
Carbonate ......per lb.	0	5¾	..	0	6	0	5	..	0	5¼
Hydrochlorate, crude, white........ per ton	500	0	..	510	0	400	0	..	500	0
British (*see* Sal Ammoniac)										
Muriate (*see* Hydrochlorate)										
Sulphate ......per ton	340	0	..	0	0	260	0	..	270	0
Argol, Cape ......per cwt	70	0	..	82	6	65	0	..	75	0
France .... ,,	45	0	..	60	0	48	0	..	70	0
Oporto, red ,,	25	0	..	27	0	26	0	..	28	0
Sicily . .. ,,	45	0	..	50	0	50	0	..	55	0
Naples, white ,,	55	0	..	65	0	60	0	..	70	0
Florence, white	70	0	..	75	0	75	0	..	80	0
,, red ,,	60	0	..	65	0	65	0	..	70	6
Bologna, white ,,	0	0	..	0	0	78	0	..	80	0
Ashes (*see* Potash and Soda)										
Bleaching powd..per cwt.	10	9	..	11	0	10	6	..	8	6
Borax, crude .... ,,	25	0	..	40	0	25	0	..	35	0
(Tincal) .. ,,	38	0	..	50	0	47	6	..	60	0
British refnd. ,,	70	0	..	0	0	50	0	..	52	6
Calomel ....per lb.	2	5	..	0	0	2	5	..	0	0
Copper:										
Sulphate ......per cwt.	24	0	..	25	0	25	0	..	26	0
Copperas, green ..per ton	55	0	..	60	0	55	0	..	57	0
Corrosive Sublimate..p.lb.	1	11	..	0	0	1	11	..	0	0
Cr. Tartar, French, p. cwt.	84	0	..	0	0	75	0	..	80	0
Venetian grey ,,	70	0	..	0	0	0	0	..	0	0
brown ,,	62	6	..	65	0	54	0	..	60	0
Epsom Salts ....per cwt.	8	0	..	8	6	8	0	..	9	0
Glauber Salts .... ,,	5	6	..	6	0	5	6	..	6	0
Lime:										
Acetate, white, per cwt.	12	6	..	21	6	15	0	..	22	0
Magnesia:										
Carbonate...... ,,	42	6	..	0	0	42	6	..	0	0
Potash:										
Bichromate ....per lb.	0	5	..	0	0	0	5	..	0	5¼
Carbonate:										
Potashes, Canada, 1st sort ......per cwt.	32	6	..	33	0	33	0	..	0	0
Pearlashes, Canada, 1st sort ......per cwt.	33	0	..	0	0	37	0	..	0	0
Chlorate ....per lb.	1	0½	..	1	1	1	0	..	1	0
Hydriodate (*see* Potassium, Iodide)										
Muriate (*see* Potassium, Chloride)										
Prussiate ......per lb.	0	11¾	..	1	0	1	0	..	1	1
red .... ,,	1	9½	..	1	10	1	9½	..	1	10
Tartrate (*see* Argol and Cream of Tartar)										
Potassium:										
Chloride ......per cwt.	8	3	..	8	6	8	0	..	8	6
Iodide.......... per lb.	12	0	..	0	0	11	9	..	0	0
Quinine:										
Sulphate, British, in bottles ...... per oz.	4	11	..	0	0	4	7	..	4	10
Sulphate, French ,,	4	6	..	0	0	4	3	.	4	4
Sal Acetos ....per lb.	0	10½	..	0	0	0	11	..	0	0
Sal Ammoniac, Brit. cwt.	36	0	..	38	0	33	0	..	35	6
Saltpetre:										
Bengal, 6 per cent. or under ......per cwt.	24	3	..	24	6	19	0	..	19	6
Bengal, over 6 per cent. per cwt.	23	9	..	24	0	18	3	..	19	0
Madras........ ,,	22	0	..	23	0	16	5	..	18	6

	1869.					1868.				
Saltpetre, *continued*:—	s.	.		s.	d	s.	d.		s.	d
Bomb & Kurrachee p.ct.	0	0	to	0	0	17	0	to	18	0
European...... ,,	0	0	..	0	0	21	6	..	22	6
British, refined ,,	28	0	..	29	0	23	0	..	23	6
Soda:										
Bicarbonate.... ,,	11	0	..	0	0	13	0	..	0	0
Carbonate:										
Soda Ash....per deg.	0	1⅞	..	0	0	0	2	..	0	0
Soda Crystals per ton.	85	0	..	0	0	95	0	..	0	0
Hyposulphite..per cwt.	16	0	..	22	0	19	0	..	19	6
Nitrate .... ,,	15	6	..	0	0	10	6	..	11	6
SUGAR OF LEAD, White, cwt.	40	0	..	42	0	37	6	..	38	0
Brown .... ,,	29	0	..	30	0	28	0	..	29	0
SULPHUR (*see* Brimstone										
VERDIGRIS .... per lb.	0	11	..	1	0	0	11	..	1	0
VERMILION, English..per lb.	2	6	.	3	0	2	9	..	3	4
China.... ,,	2	7	..	2	9	2	9	..	3	0
DRUGS.										
ALOES, Hepatic....per cwt.	190	0	..	200	0	100	0	..	195	0
Socotrine .. ,,	140	0	..	290	0	180	0	..	300	0
Cape, good.. ,,	29	0	..	32	0	30	0	..	33	0
Inferior ,,	16	0	..	28	0	18	0	..	29	0
Barbadoes ,,	70	0	..	200	0	75	0	..	210	0
AMBERGRIS, grey ....per oz.	30	0	..	35	0	32	0	..	36	0
BALSAMS—										
Canada .... per lb.	1	3	..	0	0	1	5	..	1	6
Capivi .... ,,	1	9	..	1	10	1	7	..	1	8
Peru .... ,,	10	6	..	11	0	8	0	..	0	0
Tolu .... ,,	2	6	..	0	0	2	4	..	2	6
BARKS—										
Canella alba ....per cwt.	30	0	..	38	0	22	0	..	27	0
Cascarilla........ ,,	23	0	.	35	0	18	0	..	28	0
Peru, crown & grey per lb.	0	9	..	1	8	1	3	..	2	1
Calisaya, flat ,,	2	8	..	3	0	2	6	..	2	9
quill ,,	2	6	..	2	9	2	3	..	2	6
Carthagena ,,	0	9	..	1	8	0	9	..	1	6
Pitayo .... ,,	0	7	..	1	6	0	9	..	1	6
Red .... ,,	1	9	..	6	0	2	6	..	10	0
Bucho Leaves ...... ,,	0	4	..	0	9	0	2½	..	0	9
CAMPHOR, China.. per cwt.	130	0	..	132	6	136	0	..	0	0
Japan ,,	130	0	..	132	6	140	0	..	0	0
Refin Eng. per lb.	1	9½	..	0	0	1	10	..	11	0
CANTHARIDES ...... ,,	2	2	..	0	0	1	10	..	0	0
CHAMOMILE FLOWERS p. cwt	55	0	..	90	0	45	0	..	80	0
CASTOREUM .... per lb.	5	0	..	32	0	5	0	..	30	0
DRAGON'S BLOOD, reed p. ct.	100	0	..	220	0	90	0	..	220	0
lump ,,	105	0	..	205	0	90	0	..	210	0
FRUITS AND SEEDS (*see also* Seeds *and* Spices)										
Anise, China star pr cwt.	95	0	..	100	0	120	0	..	0	0
German, &c. ,,	32	0	..	40	0	30	0	..	42	0
Beans, Tonquin .. per lb.	1	2	..	1	6	1	0	..	1	9
Cardamoms, Malabar good ,,	10	0	..	10	6	7	9	..	8	3
inferior ,,	6	6	..	9	0	5	3	..	7	6
Madras ,,	5	9	..	10	6	5	0	..	7	0
Ceylon ,,	2	10	..	3	0	2	10	..	3	0
Corozo Nuts.... per cwt.	12	0	..	16	0	12	0	..	20	0
Cassia Fistula.. ,,	15	0	..	28	0	20	0	..	32	0
Castor Seeds .. ,,	11	0	..	12	0	10	0	..	12	0
Cocculus Indicus ,,	23	0	..	26	0	22	6	..	25	0
Colocynth, apple.. per lb.	0	6½	..	0	10	0	7	..	0	11
Croton Seeds .. per cwt.	95	0	..	92	0	90	0	..	105	0
Cubebs .... ,,	40	0	..	0	0	45	0	..	47	0
Cummin........ ,,	40	0	..	50	0	16	0	..	20	0
Dividivi .... ,,	10	6	..	12	6	17	0	..	24	0
Fenugreek...... ,,	11	0	..	16	0	11	0	..	12	0
Guinea Grains .. ,,	37	0	..	39	0	50	0	..	0	0
Juniper Berries ,,	7	0	..	8	0	9	0	..	10	0
Myrobalans .... ,,	11	0	..	17	0	12	0	..	16	6
Nux Vomica.... ,,	12	0	..	15	0	15	0	..	16	0
Tamarinds, East India ,,	30	0	..	32	0	20	0	..	29	6
West India, new ,,	16	0	..	30	0	16	0	..	27	0
Vanilla, large .... per lb.	10	0	..	16	0	9	0	..	14	0
inferior ,,	4	0	..	9	0	4	0	..	8	0
Wormseed per cwt.	25	0	..	30	0	1	6	..	0	0
GINGER, Preserved, in bond (duty 1d. per lb.) per lb.	0	6	..	0	10	0	9	..	0	10
GUMS (*see separate list*)										
HONEY, Narbonne ,,	0	0	..	0	0	0	0	..	0	0
Cuba .... ,,	21	0	..	36	0	25	0	..	40	0
Jamaica.. ,,	25	0	..	43	0	20	0	..	42	0
IPECACUANHA .... ,,	5	9	..	6	0	7	0	..	0	0
ISINGLASS, Brazil . ,,	3	2	..	4	11	2	6	..	4	0
Tongue sort ,,	3	6	..	5	0	3	6	..	4	6
East India ,,	2	3	..	4	4	2	2	..	4	4
West India ,,	3	8	..	4	0	3	7	..	4	2
Russ. long staple	8	0	..	9	0	9	0	..	10	0
,, leaf ,,	5	6	..	7	0	6	0	..	9	0
,, Simovia	1	6	..	2	6	1	6	..	2	6
JALAP, good ...... ,,	3	9	..	4	3	4	3	..	5	0
infer. & stems ,,	0	6	..	3	6	0	9	..	3	10
LEMON JUICE ... per degree	0	1	..	0	1⅛	0	0¾	..	0	0⅞
LIQUORICE, Spanish per cwt.	63	0	..	67	0	65	0	..	70	0
Italian ,,	48	0	..	68	0	50	0	..	60	0
MANNA, flaky .... ,,	3	0	..	3	6	3	9	..	4	3
small...... per lb.	1	3	..	1	9	1	0	..	1	6
MUSK.............. per oz.	22	0	..	34	0	21	0	..	38	0
OILS (*see also separate List*)										
Almond, expressed per lb.	1	3	..	0	0	1	8	..	0	0
Castor, 1st pale .... ,,	0	6¼	..	0	6½	0	7	..	0	8
second .... ,,	0	5¼	..	0	6	0	6½	..	0	6¾
infer. & dark ,,	0	4¾	..	0	5	0	6	..	0	6½
Bombay (in casks)	0	4½	..	0	0	0	5½	..	0	6
Cod Liver ......per gall.	4	0	..	6	6	3	6	..	5	6
Croton............per oz.	0	3	..	0	4	1	2	..	1	6
Essential Oils:										
Almond ....per lb.	40	0	..	0	0	37	0	..	0	0

	1869.					1868.				
Essential Oils, *continued:*—	s.	d.		s.	d.	s.	d.		s.	d.
Anise-seed ...... per lb	10	0	to	0	0	11	6	to	0	0
Bay .... per cwt.	75	0	..	0	0	80	0	..	90	0
Bergamot ...... per lb.	12	0	..	23	0	11	0	..	16	0
Cajeput, (in bond) per oz.	0	1¾	..	0	2	0	2	..	0	2½
Caraway .... per lb.	5	0	..	6	0	5	0	..	6	6
Cassia .... ,,	5	9	..	6	0	6	6	..	6	8
Cinnamon ...... per oz.	1	0	..	4	0	1	3	..	3	6
Cinnamon-leaf .. ,,	0	6	..	0	0	0	5	..	0	7
Citronelle ...... ,,	0	2¾	..	0	2⅞	0	2¾	..	0	3
fine.... ,,	0	3½	..	0	0	0	4	..	0	0
Clove .... per lb.	2	6	..	0	0	2	6	..	0	0
Juniper .... ,,	1	9	..	2	0	1	6	..	1	9
Lavender........ ,,	2	9	..	3	9	2	9	..	3	9
Lemon.......... ,,	3	6	..	6	0	5	0	..	8	0
Lemongrass .... per oz.	0	4½	..	0	5	0	6	..	0	7
Neroli .... ,,	0	0	..	0	0	3	6	..	4	6
Nutmeg .... ,,	0	4	..	0	7	0	3	..	0	9
Orange.......... per lb.	5	0	..	7	0	5	0	..	7	0
Otto of Roses.... per oz.	15	0	..	20	0	16	0	..	20	0
Peppermint:										
American .... per lb.	19	0	..	20	0	21	6	..	21	6
English ...... ,,	38	0	..	43	0	34	0	..	44	0
Rosemary ...... ,,	1	9	..	2	0	1	9	..	2	0
Sassafras........ ,,	3	6	..	4	0	3	0	..	3	3
Spearmint ...... ,,	12	0	..	24	0	16	0	..	25	0
Thyme.......... ,,	1	10	..	4	0	2	0	..	4	0
Mace, expressed .. per oz.	0	0¾	..	0	2½	0	6	..	0	7
Opium, Turkey ...... ,,	45	0	..	49	0	18	0	..	19	0
Egyptian .... ,,	0	0	..	0	0	3	6	..	7	0
Quassia (bitter wood) per ton	120	0	..	130	0	100	0	..	105	0
Rhubarb, China, good and fine .... per lb.	5	3	..	9	0	6	0	..	9	0
Good, mid. to ord. ,,	1	3	..	4	9	1	9	..	6	0
Dutch trimmed ,,	10	0	..	12	0	10	0	..	12	0
Russian .... ,,	9	0	..	10	0	9	0	..	10	0
ROOTS—										
Calumba .... per cwt.	27	0	..	45	0	22	0	..	25	0
China .... ,,	30	0	..	35	0	30	0	..	0	0
Galangal .... ,,	17	0	..	19	0	16	0	..	17	0
Gentian .... ,,	17	0	..	19	0	15	0	..	17	0
Hellebore ...... ,,	22	0	..	30	0	26	0	..	32	0
Orris............ ,,	38	0	..	42	0	32	0	..	42	0
Pellitory .... ,,	58	0	..	60	0	58	0	..	60	0
Pink.............. per lb.	0	7	..	0	9	0	9	..	0	11
Rhatany .... ,,	0	6	..	0	10	0	6	..	1	0
Seneka............ ,,	1	6	..	0	0	1	6	..	0	0
Snake .... ,,	1	3	..	0	0	2	6	..	0	0
Saffron, Spanish .. ,,	28	0	..	34	0	30	0	..	34	0
Salep .... per cwt.	120	0	..	130	0	100	0	..	120	0
Sarsaparilla, Lima per lb.	0	0	..	0	0	0	0	..	0	0
Para.............. ,,	1	0	..	1	3	0	0	..	0	0
Honduras .... ,,	1	0	..	1	6	0	10	..	1	4
Jamaica .... ,,	1	4	..	2	1	1	0	..	2	1
Sassafras .... per cwt.	15	0	..	0	0	10	0	..	0	0
Scammony, Virgin .. per lb.	28	0	..	35	0	28	0	..	36	0
second & ordinary ,,	10	0	..	23	0	11	0	..	23	0
Senna, Bombay .... ,,	0	3	..	0	5½	0	2	..	0	3½
Tinnivelly .... ,,	0	2	..	0	10	0	2	..	0	10
Alexandria........ ,,	0	6	..	0	11½	0	5	..	0	10
Spermaceti, refined.. ,,	1	5	..	0	0	1	6	..	0	0
American .... ,,	1	4	..	0	0	1	6	..	0	0
Squill.............. ,,	0	1	..	0	2¼	0	1	..	0	2½

GUMS.

	1869.					1868.				
	s.	d.		s.	d.	s.	d.		s.	d.
Ammoniac, drop .. per cwt.	220	0	..	280	0	180	0	..	220	0
lump .. ,,	120	0	..	200	0	120	0	..	160	0
Animi, fine washed ,,	230	0	..	280	0	200	0	..	220	0
bold scraped ,,	180	0	..	210	0	190	0	..	210	0
sorts ...... ,,	100	0	..	150	0	100	0	..	130	0
dark ...... ,,	0	0	..	0	0	72	0	..	100	0
Arabic, E. I., fine pale picked .. ,,	80	0	..	83	0	90	0	..	92	0
srts, gd. to fin ,,	60	0	.	77	0	77	0	..	87	0
garblings.. ,,	45	0	..	55	0	68	0	..	77	0
Turkey, pick. gd to fin. ,,	170	0	..	210	0	175	0	..	220	0
second & inf. ,,	85	0	..	160	0	85	0	..	170	0
in sorts .. ,,	70	0	..	98	0	70	0	..	88	0
Gedda.... ,,	48	0	..	53	0	42	6	..	47	0
Barbary, white .. ,,	70	0	..	80	0	60	0	..	70	0
brown .. ,,	70	0	..	80	0	85	0	..	90	0
Australian ...... ,,	31	0	..	38	0	50	0	..	60	0
Assafœtida, com. to gd ,,	60	0	..	100	0	60	0	..	100	0
Benjamin, 1st qual. ,,	360	0	..	680	0	180	0	..	660	0
2nd ,, ,,	140	0	..	240	0	160	0	..	300	0
3rd ,, ,,	50	0	..	100	0	60	0	..	120	0
Copal, Angola, red ,,	70	0	..	90	0	60	0	..	70	0
Benguela .. ,,	80	0	..	90	0	64	6	..	68	0
Sierra Leone .. per lb.	0	6	..	1	3	0	6	..	1	2
Manilla .... per cwt.	29	0	..	45	0	26	0	..	45	0
Dammar, pale .... ,,	90	0	..	95	0	65	0	..	75	0
Euphorbium ...... ,,	18	0	..	19	0	18	0	..	21	0
Galbanum .... ,,	180	0	..	220	0	240	0	..	280	0
Gamboge, pckd. pipe ,,	320	0	..	380	0	740	0	..	980	0
in sorts.. ,,	0	0	..	0	0	0	0	..	0	0
Guaiacum .... per lb.	0	8	..	1	4	0	6	..	2	0
Kino.............. per cwt.	60	0	..	120	0	60	0	..	100	0
Kowrie, rough.... ,,	36	0	..	47	0	28	0	..	46	0
scraped .. ,,	50	0	..	100	0	40	0	..	75	0
Mastic, picked...... per lb.	5	0	..	6	6	5	6	..	6	6
Myrrh, gd. & fine per cwt.	200	0	..	280	0	180	0	..	210	0
sorts......	80	0	..	160	0	100	0	..	170	0
Olibanum, p. sorts	75	0	..	82	0	80	0	..	85	0
amber & ylw.	64	0	..	73	0	75	6	..	80	0
garblings.... ,,	25	0	..	45	0	30	0	..	45	0
Senegal .... per cwt.	78	0	..	85	0	90	0	..	0	0
Sandarad .... ,,	82	0	..	105		80	0	..	105	6
Gums, *continued* :—	s.	d.		s.	d.	s.	d.		s.	d
Thus.............. ,,	13	0	to	14	0	16	0	to	0	0
Tragacanth, leaf.. ,,	220	0	..	289	0	240	0	..	280	0
in sorts ,,	140	0	..	200	0	160	0	..	220	0

OILS.

	1869.					1868.				
	£	s.		£	s.	£	s.		£	s.
Seal, pale.......... per tun	36	0	..	0	0	40	0	..	40	10
yellow to tinged ,,	33	0	..	35	0	37	0	..	39	0
brown........ ,,	32	0	..	0	0	36	0	..	37	0
Sperm, body ...... ,,	92	0	..	100	0	110	0	..	0	0
headmatter ,,	0	0	..	0	0	0	0	..	0	0
Cod.............. ,,	39	0	..	40	0	35	0	..	36	0
Whale, South Sea, pale ,,	36	0	..	0	0	39	10	..	0	0
yellow ,,	35	0	..	0	0	38	10	..	39	0
brown ,,	33	0	..	0	0	36	0	..	37	0
East India, Fish ,,	32	0	..	0	0	35	0	..	0	0
Olive, Galipoli ...... ,,	57	0	..	0	0	70	0	..	0	0
Trieste ...... ,,	56	0	..	0	0	69	0	..	0	0
Levant ...... ,,	51	0	..	0	0	65	0	..	0	0
Mogador...... ,,	50	0	..	0	0	62	0	..	63	0
Spanish ...... ,,	55	0	..	0	0	66	0	..	68	0
Sicily .... ,,	54	0	..	0	0	66	0	..	0	0
Cocoanut, Cochin.. per ton	50	0	..	0	0	56	0	..	0	0
Ceylon.. ,,	47	0	..	0	0	50	0	..	51	0
Sydney ,,	43	0	..	47	0	42	0	..	50	0
Ground Nut and Gingelly:										
Bombay	0	0	..	0	0	50	0	..	0	0
Madras..............	38	0	..	39	0	54	0	..	55	0
Palm, fine	42	0	..	0	0	40	10	..	41	0
Linseed	27	10	..	0	0	34	10	..	0	0
Rapeseed, English, pale ..	33	0	..	0	0	37	0	..	0	0
brown........	31	0	..	0	0	37	10	..	0	0
Foreign pale....	34	0	..	0	0	39	10	..	40	0
brown........	31	10	..	0	0	38	0	..	0	0
Cottonseed	25	0	..	31	0	30	0	..	37	0
Lard....................	67	0	..	70	0	60	0	..	0	0
Tallow	37	0	..	38	0	36	0	..	38	0
Petroleum, Crude	12	0	..	12	10	10	0	..	11	0
	s.	d.		s.	d.	s.	d.		s.	d.
refined, per gall.	1	8	..	0	0	1	3½	..	1	4
Spirit ,,	0	8	..	0	9	2	0	..	2	1

SEEDS.

	1869.					1868.				
	s.	d.		s.	d.	s.	d.		s.	d
Canary .... per qr.	66	0	..	68	0	62	0	..	70	0
Caraway, English per cwt.	0	0	..	0	0	44	0	..	46	0
German, &c.....	32	0	..	44	0	40	0	..	48	0
Coriander	0	0	..	0	0	18	0	..	20	0
Hemp .... per qr.	42	0	..	44	0	42	0	..	44	0
Linseed, English per qr...	65	0	..	72	0	0	0	..	0	0
Black Sea & Azof	56	0	..	0	0	65	0	..	0	0
Calcutta ,,	57	0	..	0	0	68	6	..	0	0
Bombay ,,	58	0	..	0	0	68	6	..	0	0
St. Petrsbrg. ,,	54	0	..	55	6	63	0	..	63	6
Mustard, brown.. per bshl.	13	0	..	16	0	0	0	..	0	0
white.. ,,	12	0	..	14	0	8	0	..	10	6
Poppy, East India per qr,	61	0	..	0	0	58	0	..	0	0

SPICES.

	1869.					1868.				
	s.	d.		s.	d.	s.	d.		s.	d.
Cassia Lignea .... per cwt.	140	0	..	150	0	125	0	..	135	0
Vera .... ,,	60	0	..	84	0	50	0	..	70	0
Buds .... ,,	140	0	..	150	0	170	0	..	190	0
Cinnamon, Ceylon,										
1st quality .... per lb.	3	2	..	4	0	2	0	..	2	9
2nd do. ...... ,,	2	8	..	3	6	1	8	..	2	6
3rd do. ...... ,,	2	4	..	3	4	1	6	..	2	3
Tellicherry ...... ,,	0	0	..	0	0	2	0	..	2	1
Cloves, Penang.... ,,	0	10	..	0	11¼	0	10	..	1	0
Amboyna........ ,,	0	5	..	0	6	0	5¾	..	0	0
Zanzibar .... ,,	0	3½	..	0	4½	0	3⅛	..	0	3½
Ginger, Jam, fine per cwt.	90	0	..	200	0	100	0	..	150	0
Ord. to good .. ,,	35	0	..	80	0	40	0	..	95	0
African.......... ,,	27	6	..	29	0	29	0	..	0	0
Bengal .... ,,	26	0	..	27	0	27	0	..	27	6
Malabar .... ,,	0	0	..	0	0	28	0	..	0	0
Cochin .... ,,	31	0	..	120	0	44	0	..	110	0
Pepper, Blk, Malabar, per lb.	0	4½	..	0	5	0	4	..	0	5
White, Tellicherry ,,	0	10	..	1	6	0	9	..	1	9
Cayenne .... ,,	0	4	..	0	8½	0	6	..	0	8

VARIOUS PRODUCTS.

	1869.					1868.				
COCHINEAL—										
Honduras, black .. per lb.	3	2	..	4	5	3	3	..	4	4
,, silver .. ,,	2	10	..	3	7	3	2	..	3	9
,, pasty .. ,,	1	5	..	2	8	1	6	..	3	0
Mexican, black .... ,,	3	1	..	3	3	3	2	..	3	5
,, silver .... ,,	2	10	..	0	0	3	0	..	0	0
Teneriffe, black....	3	1	..	4	8	3	0	..	4	1
,, silver.... ,,	2	10	..	3	4	3	0	..	3	6
GLUE, Town...... per cwt.	40	0	..	60	0	40	0	..	60	0
French ...... ,,	62	0	..	0	0	52	0	..	64	0
GUANO—										
African, &c....... per ton.	60	0	..	0	0	70	0	..	110	0
Peruvian .... ,,	£12	10	..	0	0	240	0	..	0	0
	s.	d.	..	s.	d.	s	d.	..	s.	d.
LAC, Shellac, orange p. cwt.	92	6	..	106	0	77	6	..	91	6
Liver & nat. orange ,,	75	0	..	87	6	57	0	..	75	0
Garnet............ ,,	75	0	..	81	6	57	6	..	62	0
Button, dark to mid. ,,	70	0	..	90	6	55	0	..	79	6
Good and fine .. ,,	92	0	..	112	6	85	0	..	110	0
Seedlac.......... ,,	45	0	..	65	0	55	0	..	80	0
Sticklac .... ,,	55	0	..	67	6	45	0	..	65	0
PUMICE STONE .. per ton	120	0	..	160	0	120	0	..	160	0
SOAP, Castile .... per cwt.	38	0	..	39	0	38	0	..	40	0
Marseilles.... ,,	40	0	..	0	0	40	0	..	0	0
SPONGE, Turk. fin pkd pr lb.	12	0	..	14	0	12	0	..	14	0
Fair to good .. ,,	5	0	..	11	0		0	..	11	0
Ordinary...... ,,	2	0	..	4	0	2	0	..	0	0
Bahama.............. ,,	0	6	..	2	6	0	8	..	1	9